Cybex Pro+ Treadmill
Service Manual

Cardiovascular Systems

Part Number LT-21649-4 A

www.cybexinternational.com

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Service Manual

Cardiovascular Systems

Part Number LT-21649-4 A

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www.cybexinternational.com • techhelp@cybexintl.com • LT-21649-4 A • October 2008

About This Manual

An Owner's Manual is shipped with each unit. To purchase additional copies of the Owner's Manual or any other Cybex manual, please do one of the following:

- Fax orders to 508-533-5183
- Contact Cybex Customer Service at 888-462-9239 or 508-533-4300

To contact Cybex with comments about this manual send an email to techhelp@cybexintl.com.

FCC Compliance Information

! WARNING: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception (which can be determined by turning the equipment off and on) the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio TV technician for help.

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1- Safety

IMPORTANT: *Read all instructions and warnings before using the treadmill.*

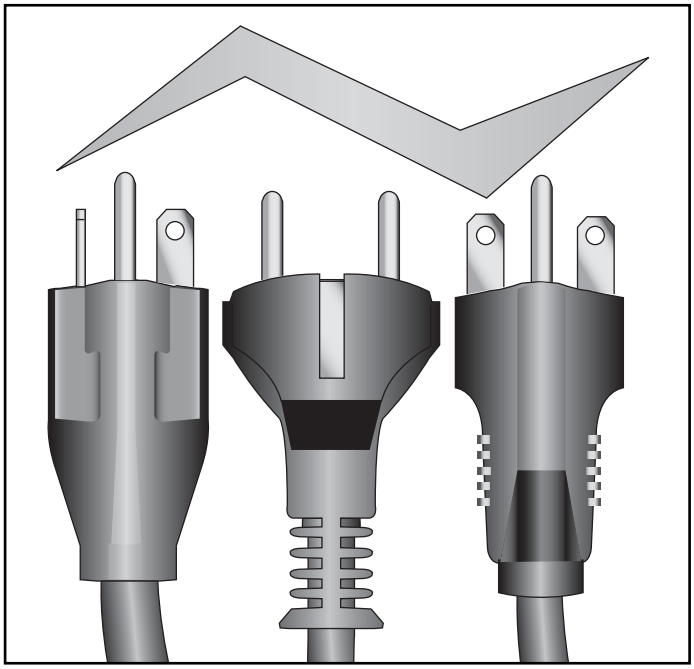
Important Voltage Information

Before plugging the power cord into an electrical outlet, verify that the voltage requirements for your area match the voltage of the treadmill that you have received. The power requirements for the Cybex Pro+ treadmill include a grounded, dedicated circuit, rated for one of the following: 115 VAC ±5%, 60 Hz and 20 amps; 208/220 VAC, 60 Hz, 15 amps or 230 VAC ±5%, 50 Hz and 15 amps. See the serial number decal for the exact voltage requirements of your treadmill.

! WARNING: Do not attempt to use this unit with a voltage adapter.
Do not attempt to use this unit with an extension cord.

Grounding Instructions

This treadmill must be grounded. If it should malfunction or break down, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This product is equipped with a cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into an appropriate outlet that is properly installed and grounded in accordance with all local codes and ordinances.



115V NEMA 5-20 | Euro Plug CEE 7/7 | 208/220V NEMA 6-15

! DANGER: Improper connection of the equipment-grounding conductor can result in a risk of electric shock. Check with a qualified electrician or service provider if you are in doubt as to whether the treadmill is properly grounded. Seek a qualified electrician to perform any modifications to the cord or plug. Cybex is not responsible for injuries or damages as a result of cord or plug modification.

This treadmill is for use on a nominal 115 VAC ±5%, 60 Hz and 20 amps, 208/220 VAC, 60 Hz, 15 amps or 230 VAC ±5%, 50 Hz and 15 amps and a grounded, dedicated circuit. Make sure that the treadmill is connected to an outlet having the same configuration as the plug. Do not use a ground plug adapter to adapt the power cord to a non-grounded outlet.

Important Safety Instructions

(Save These Instructions)

! DANGER: To reduce the risk of electric shock, always unplug this treadmill from the electrical outlet immediately after using it and before cleaning it.

! WARNING: Serious injury could occur if these precautions are not observed. To reduce the risk of burns, fires, electric shock, or injury:

User Safety Precautions

- **DO NOT** wear loose or dangling clothing while using the treadmill.
- Use the treadmill handrails for support and to maintain balance.
- Stop exercising if you feel faint, dizzy, or experience pain at any time.
- Obtain a medical exam before beginning any exercise program.
- Read and understand emergency stop procedures.
- Replace any warning labels if damaged, worn or illegible.
- Report any malfunctions, damage or repairs to the facility.
- Place your feet on the two top steps when starting or stopping the treadmill.
- Stop and place the treadmill at 0 degrees incline (level) after each use.
- Keep children away from the treadmill. Teenagers and disabled persons must be supervised while using.
- Obtain instruction before using.
- Keep all body parts, hair, towels, water bottles and the like free and clear of moving parts.
- Read and understand the Owner's Manual and all warnings posted on the unit before using.
- **DO NOT** use the unit if you exceed 400 lbs. (181 kg). This is the rated maximum user weight.

Facility Safety Precautions

- Instruct all users on how to clip the e-stop clip onto their clothing and carefully test it prior to using the treadmill.
- Instruct all users to use caution when mounting and dismounting the treadmill.
- Disconnect all power before servicing the treadmill.
- Use a dedicated line when operating the treadmill.
- Connect the treadmill to a properly grounded outlet only.

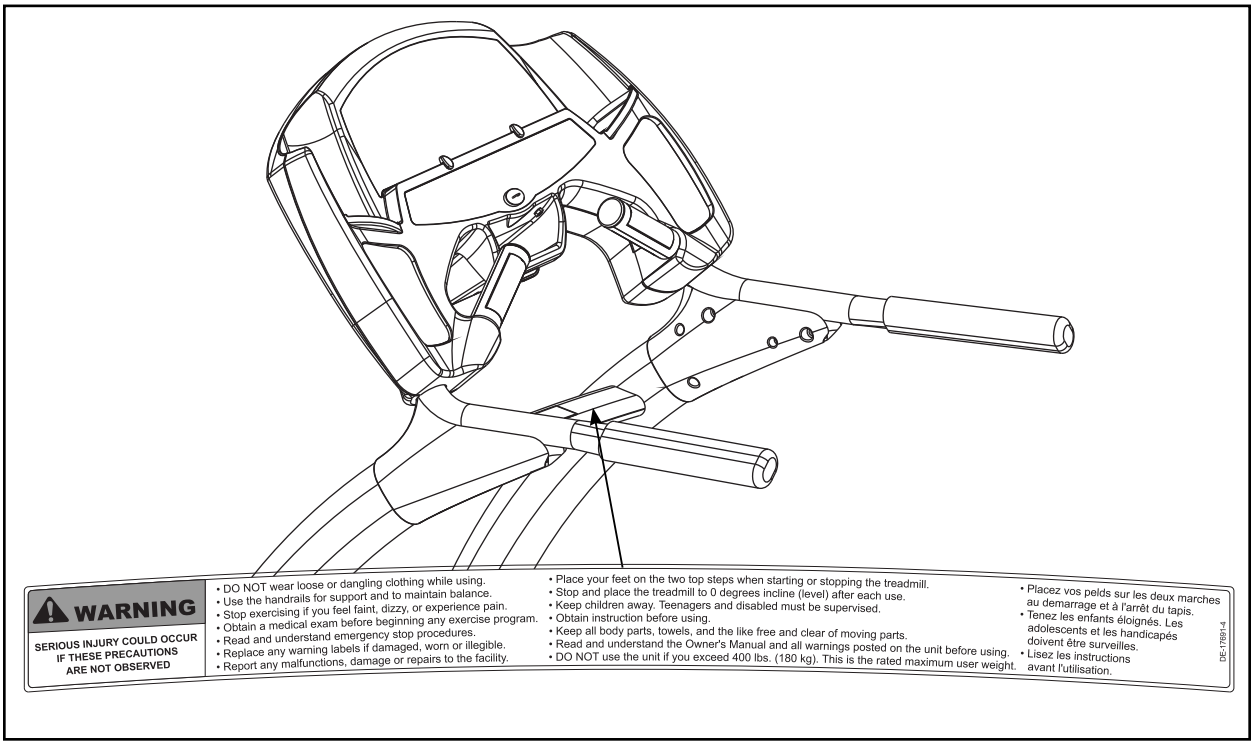
- **DO NOT** operate electrically powered treadmills in damp or wet locations.
- Keep the running belt clean and dry at all times.
- **DO NOT** leave the treadmill unattended when plugged in and running. ***NOTE:*** *Before leaving the treadmill unattended, always wait until the treadmill comes to a complete stop and is level. Then, turn all controls to the STOP or OFF position and remove the plug from the outlet. Remove the e-stop key from the treadmill.*
- Immobilize the treadmill (when not in use) by removing the e-stop key.
- Inspect the treadmill for worn or loose components before each use. Do not use until worn or damaged parts are replaced.
- Maintain and replace worn parts regularly. Refer to “Preventive Maintenance” section of Owner’s Manual.
- **DO NOT** operate the treadmill if: (1) the cord is damaged; (2) the treadmill is not working properly or (3) if the treadmill has been dropped or damaged. Seek service from a qualified technician.
- **DO NOT** place the cord near heated surfaces or sharp edges.
- **DO NOT** use the treadmill outdoors.
- **DO NOT** operate the treadmill around or where aerosol (spray) or where oxygen products are being used.
- Read and understand the Owner’s Manual completely before using the treadmill.
- Ensure all users wear proper footwear on or around all Cybex equipment.
- Set up and operate the treadmill on a solid, level surface. Do not operate in recessed areas or on plush carpet.
- Provide the following clearances: 19.7 inches (0.5 m) at each side, 79 inches (2.0 m) at the back and enough room for safe access and passage at the front of the treadmill. Be sure your treadmill is clear of walls, equipment and other hard surfaces.
- **DO NOT** attempt repairs, electrical or mechanical. Seek qualified repair personnel when servicing. If you live in the USA, contact Cybex Customer Service at 888-462-9239. If you live outside the USA, contact Cybex Customer Service at 508-533-4300.
- Use Cybex factory parts when replacing parts on the treadmill.
- **DO NOT** modify the treadmill in any way.
- **DO NOT** use attachments unless recommended for the treadmill by Cybex.

- Ensure all User and Facility safety precautions are observed.
- Carefully read and understand the following before using the Cybex Pro+ treadmill:
  - Warning Decals
  - Caution Decals

To replace any worn or damaged decals do one of the following: Fax orders to 508-533-5183 or contact Cybex Customer Service at 888-462-9239. If you live outside of the USA, call 508-533-4300. For location or part number of labels, see the parts list and exploded-view diagram.

Warning Decals

Warning decals indicate a potentially hazardous situation, which, if not avoided, could result in death or serious injury. The warning decals used on the Cybex Pro+ are shown below.



⚠ WARNING

All maintenance activities shall be performed by qualified personnel. Failure to do so could result in serious injury.

Service Schedule

NOTE: *This is the minimum recommended service.*

1. Determine mileage.

A. Enter *Test Mode* by holding down any key while turning the treadmill to the on (I) position.

B. Press *dist* (except on all Cybex Sport models). DIST appears on the display.

First 500 Miles

A Check Running Belt Tension & Tracking.

Every 5000 Miles

A Check Running Belt Tension & Tracking.
B Move Treadmill & Vacuum Underneath.
C Remove Motor Cover to Clean Underneath with a Dry Cloth & Vacuum.

Every 10,000 Miles

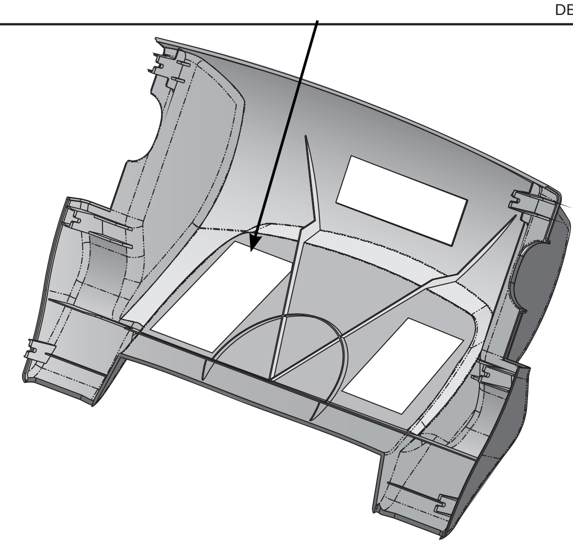
D Replace Belt & Flip Deck.
E Check Motor Brushes & Replace If Needed.
F Check Current Draw.
G Measure Motor Voltage at Max Speed with No Load.
H Check Elevation Assembly & Replace Worn Parts.
I Lubricate Elevation Bushings.

Every 20,000 Miles

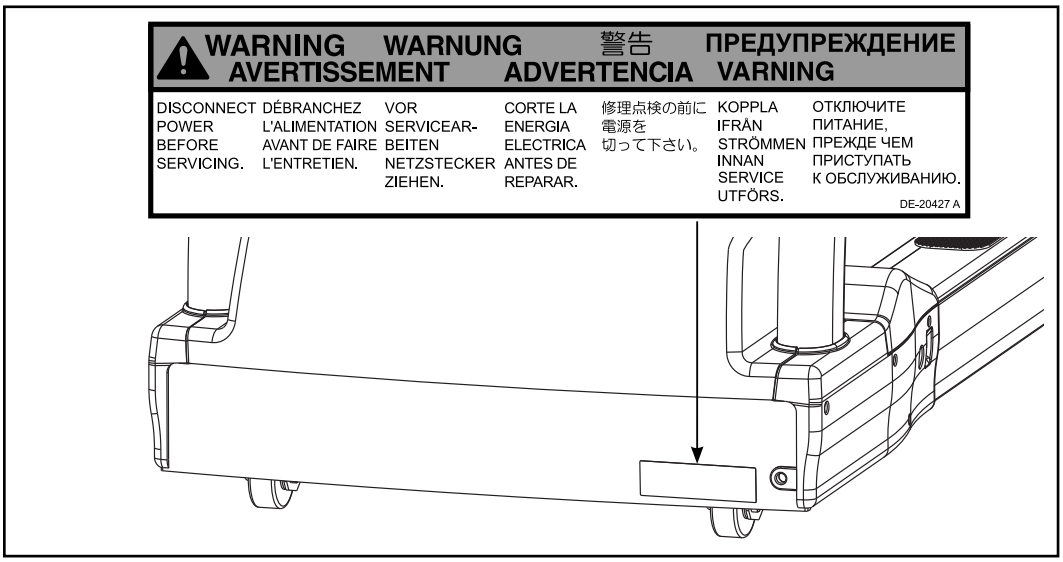
J Replace Belt & Deck.

Date	*Mileage*	*Service*	*Initials*

DE-16609-4

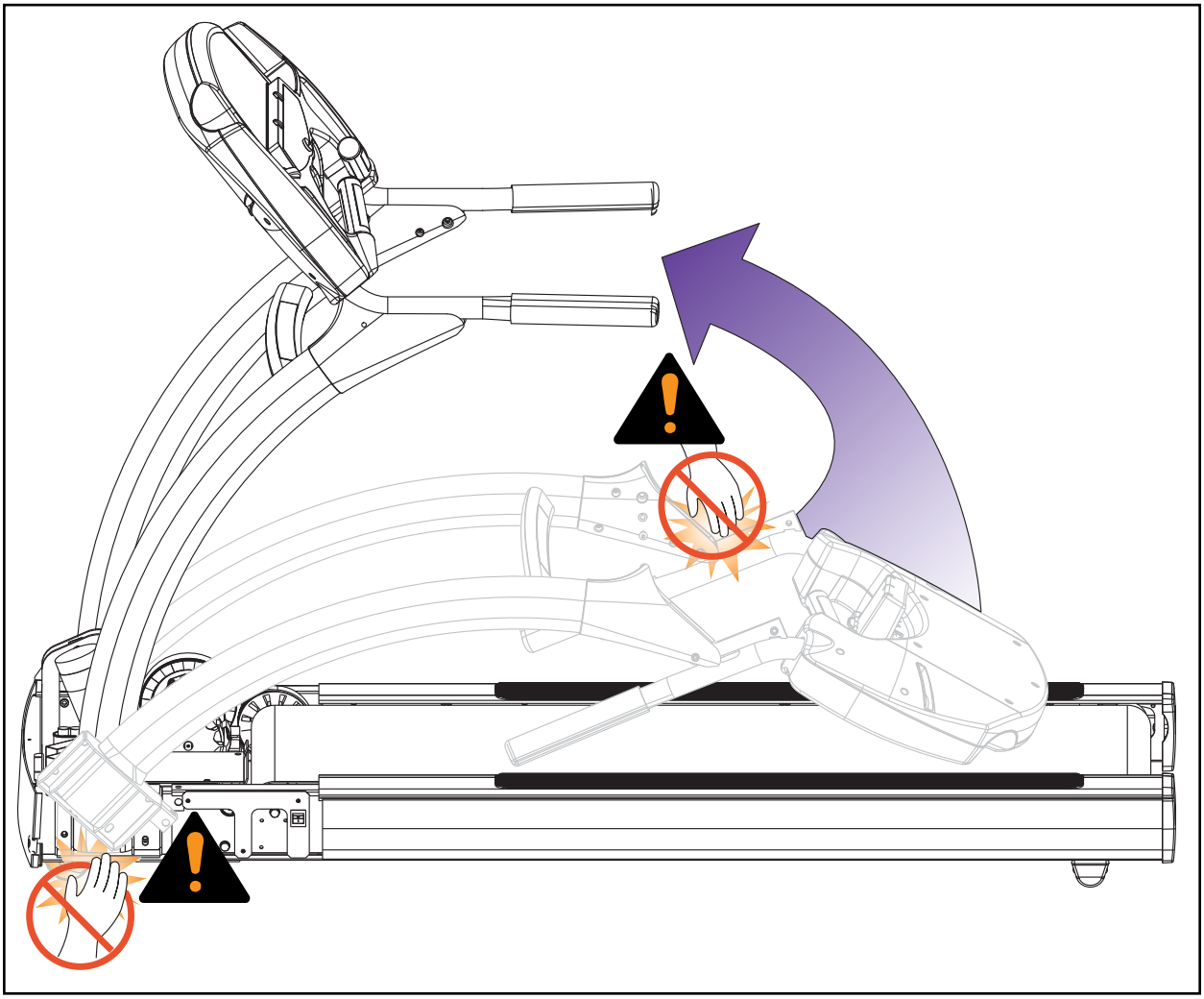



WARNING
SERIOUS INJURY COULD OCCUR IF THESE PRECAUTIONS ARE NOT OBSERVED
High voltage is present under this shield. This shield should only be removed by a qualified service technician.
Keep wet items away from inside parts of the treadmill.
High voltage may still be present even if the treadmill is unplugged.


WARNING AVERTISSEMENT
WARNUNG ADVERTENCIA
警告
ПРЕДУПРЕЖДЕНИЕ VARNING
DISCONNECT POWER BEFORE SERVICING.
DÉBRANCHEZ L'ALIMENTATION AVANT DE FAIRE L'ENTRETIEN.
VOR SERVICEARBEITEN NETZSTECKER ZIEHEN.
CORTE LA ENERGIA ELECTRICA ANTES DE REPARAR.
修理点検の前に電源を切って下さい。
KOPPLA IFRÅN STRÖMMEN INNAN SERVICE UTFÖRS.
ОТКЛЮЧИТЕ ПИТАНИЕ, ПРЕЖДЕ ЧЕМ ПРИСТУПАТЬ К ОБСЛУЖИВАНИЮ.
DE-20427 A

Caution Decals

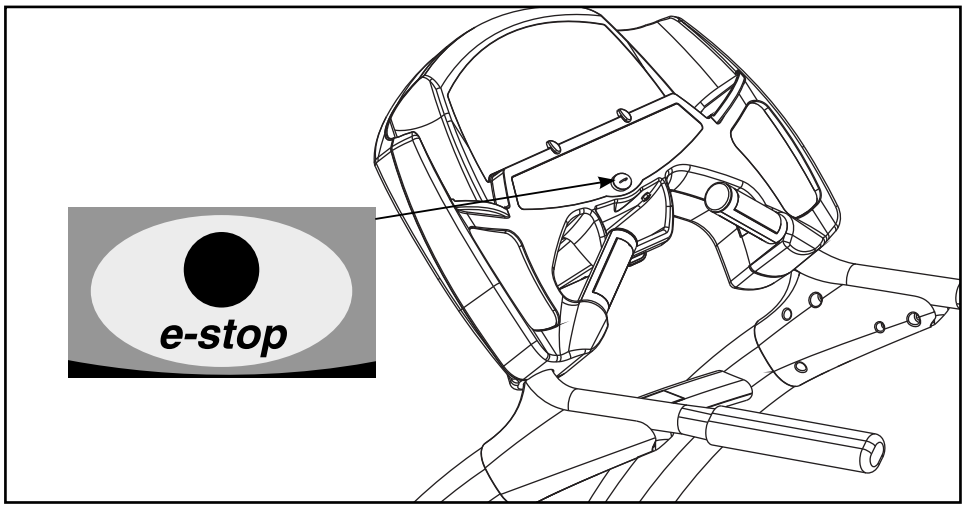
Caution decals indicate a potentially hazardous situation, which, if not avoided, may result in minor or moderate injury. There are no caution decals used on the Cybex Pro+ treadmill. However, there is a caution in the installation instructions for initial installation only. See below.



Emergency Stop Key (e-stop)

The e-stop key functions as the emergency stop. In an emergency situation, remove the e-stop key and the treadmill will come to a stop. Before using the treadmill, clip the e-stop key as described below.

1. Clip the e-stop key to your clothing. ***NOTE:*** *Be sure the string is free of knots and has enough slack for you to run comfortably with the e-stop key in place.*
2. Without falling off the treadmill, carefully step backward until the e-stop falls off the treadmill. ***NOTE:*** *If the e-stop clip falls off your clothing then the test has failed. Reclip the e-stop clip to your clothing and repeat this step.*
3. Replace e-stop after successfully testing the e-stop key. See the illustration shown below.



4. The treadmill is now ready to be used.
5. After use, remove the e-stop key from the treadmill.

NOTE: *The e-stop key shall be removed to help prevent unauthorized use. Refer to the Stopping the Treadmill section in the Operation chapter for more information about the e-stop key.*

2 - Preventive Maintenance

Warnings/Cautions

All warnings and cautions listed in this chapter are as follows:

! WARNING:** **All maintenance activities shall be performed by qualified personnel. Failure to do so could result in serious injury.

! WARNING:** **To prevent electrical shock, be sure that power is shut off and the treadmill is unplugged from the electrical outlet before performing any cleaning or maintenance procedures.

! WARNING:** **Keep wet items away from inside parts of the treadmill. Electrical shock could occur even if the treadmill is unplugged. Do not touch components on the lower board. A charge can remain after unplugging the power cord and turning off the treadmill.

! CAUTION:** **Be careful not to over tighten the belt. Over tightening the belt can cause the belt to stretch and require replacement.

Regular Maintenance Activities

! WARNING:** **All maintenance activities shall be performed by qualified personnel. Failure to do so could result in serious injury.

Preventive maintenance activities must be performed to maintain normal operation of your treadmill. Keeping a log sheet of all maintenance actions will assist you in staying current with all preventive maintenance activities. See Service Schedule located at the end of this chapter.

***NOTE:** Worn or damaged components shall be replaced immediately or the treadmill removed from service until the repair is made.*

***NOTE:** Cybex is not responsible for performing regular inspection and maintenance actions for your treadmill. Instruct all personnel in equipment inspection and maintenance actions and also in accident reporting/recording. Contact Cybex Customer Service at 888-462-9239 or 508-533-4300 for any preventive maintenance or service concerns.*

Cleaning Your Treadmill

When cleaning your treadmill spray a mild cleaning agent, such as a water and dishsoap solution, on a clean cloth first and then wipe the treadmill with the damp cloth.

NOTE: *Do not spray cleaning solution directly on the treadmill. Direct spraying could cause damage to the electronics and may void the warranty.*

! WARNING: To prevent electrical shock, be sure that power is shut off and the treadmill is unplugged from the electrical outlet before performing any cleaning or maintenance procedures.

After Each Use – Wipe up any liquid spills immediately. After each workout, use a cloth to wipe up any remaining perspiration from the handrails and painted surfaces.

Be careful not to spill or get excessive moisture between the edge of the display panel and the console, as this might create an electrical hazard or cause failure of the electronics.

As Needed – Vacuum any dust or dirt that might accumulate under or around the treadmill. Motors are especially susceptible to dust and dirt, and restricted airflow can prevent adequate cooling that could shorten motor life. Cleaning this area should be done as often as indicated in the Service Schedule, more often in dusty environments.

! WARNING: Keep wet items away from inside parts of the treadmill. Electrical shock could occur even if the treadmill is unplugged. Do not touch components on the lower board. A charge can remain after unplugging the power cord and turning off the treadmill.

To clean the motor components, you must loosen the six Phillips screws that hold the motor cover in place. Lift the cover straight up; the screws and side covers will stay in place. Use a vacuum attachment or hand vacuum to clean the exposed elevation assembly, drive motor, lower electronics and the surrounding areas.

Also use a dry cloth for the areas that you can't reach with the vacuum cleaner. If the machine has not been used for some time or is excessively dirty, use a *dry* cloth to wipe all exposed areas. Replace the cover and tighten the screws when finished.

Lift the rear of the treadmill and roll it back from its present position so as to vacuum the floor area underneath the unit. Wipe clean the underside of the treadmill to prevent dirt and dust build-up. When finished, return the treadmill to its normal position.

Contact Heart Rate Grips – Contaminants, such as hand lotions, oils or body powder, may come off on the contact heart rate grips. These can reduce sensitivity and interfere with the heart rate signal. It is recommended that the user have clean hands when using the contact heart rate. Clean the grips using a cloth dampened with a cleaning solution containing alcohol. The grips are the only part of the treadmill you should use a cleaning solution containing alcohol.

Running Belt Maintenance

Belt and Deck – Clean the belt and the deck surfaces to minimize the effect of friction between the wood deck and the running belt. Clean the underside of the running belt and the top of the running deck surface by wiping them with a clean dry towel. This should be done often to prevent premature wear of the deck, running belt, and the drive motor system. See the Service Schedule in this chapter to determine the minimum recommended cleaning.

The running belt may become loose and slip on the drive roller with each foot plant. If it does, follow the Tensioning and Centering the Belt in this chapter. See the Service Schedule in this chapter for a minimum schedule for checking the belt tension.

Tension and Center the Belt – If the belt is slipping under each step perform this procedure:

Tools Required

- 3/4” Socket wrench

1. Tension the belt.

A. Use a 3/4” socket wrench to turn each bolt 1/2 turn clockwise. See Figure 1.
NOTE: *Be sure to adjust each bolt equally on each side.*

B. Turn the power on and press the **Quick Start** key.

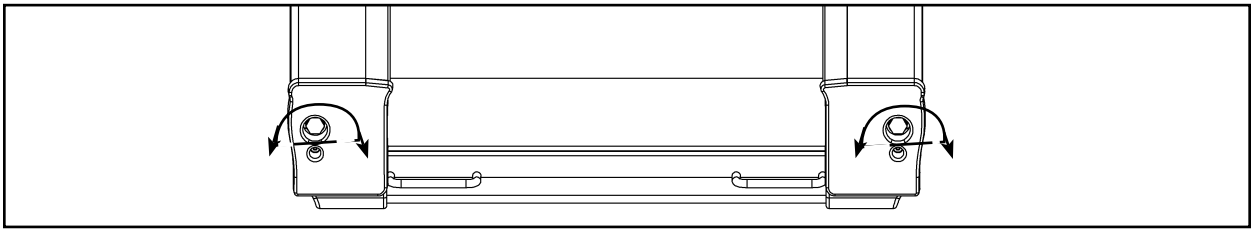


Figure 1

C. Press the **Speed** + - keys to bring the speed up to 3.5-4 mph (5.6-6.4 kph). Allow the treadmill to run for a minute.

D. Observe the belt to be sure it stays centered. If it is not centered follow step 2.

E. Walk on the treadmill at 3.5-4 mph (5.6-6.4 kph) and every 4th to 5th step throw your weight into your step to feel if the belt is slipping. If the belt does slip, use a wrench to equally tighten ***both*** rear roller adjustment bolts 1/2 of a turn (clockwise). Adjust the belt until no further slipping is felt. If the running belt continues to slip the drive belt could be loose. Follow the next step to be sure the belt is centered.

! CAUTION: Be careful not to over tighten the belt. Over tightening the belt can cause the belt to stretch and require replacement.

2. Center the belt.

NOTE: *While centering the belt choose one bolt to adjust. Do not adjust both bolts.*

A. With the treadmill running at 5 mph (8 kph) observe the running belt. If the belt tracks off center to the right or left the deck will become exposed. Use a 3/4" socket wrench to tighten the rear roller bolt on the side of the treadmill toward which the belt is moving. For example: If the belt moves to the right and the deck becomes exposed on the left, tighten the bolt on the right side of the frame, tighten about 1/2 of a turn (clockwise) and wait 30 seconds. If the belt does not move back to the center of the treadmill, make another adjustment to the ***same bolt***. Once the running belt has been adjusted closer to the center of the treadmill use about 1/4 of a turn until the belt has been stabilized.

B. After the belt has been centered, check the belt tension again. Make sure the running belt tension is tight enough so that the belt does not slip or hesitate when stepped on. Refer to step 1E.

Checking the Belt and Deck Surfaces – The running belt and deck should be checked periodically for any excessive wear. In an effort to make sure that the running belt operates properly, visually inspect the belt often to make sure that there are no tears or fraying in the belt material.

Inspect the edges of the belt as described below. ***NOTE:*** *It is necessary to remove the motor cover and plastic side panels.*

Tools Required

- Phillips screwdriver
- Dry towel

1. Disconnect the external power source.

A. Turn the main power switch on the left side to the off (O) position.

B. Unplug the treadmill from the power outlet.

2. Remove the motor cover.

A. Using a Phillips screwdriver, loosen three screws on each motor cover side (left and right). See Figure 2.

B. Lift the motor cover up and off the treadmill. The screws will stay in place. See Figure 2.

3. Remove the end caps.

A. Using a Phillips screwdriver, remove the screw that holds each end cap in place. See Figure 3.

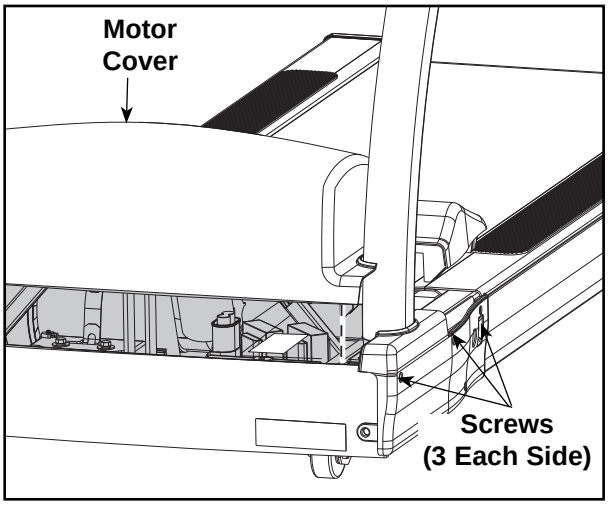


Figure 2

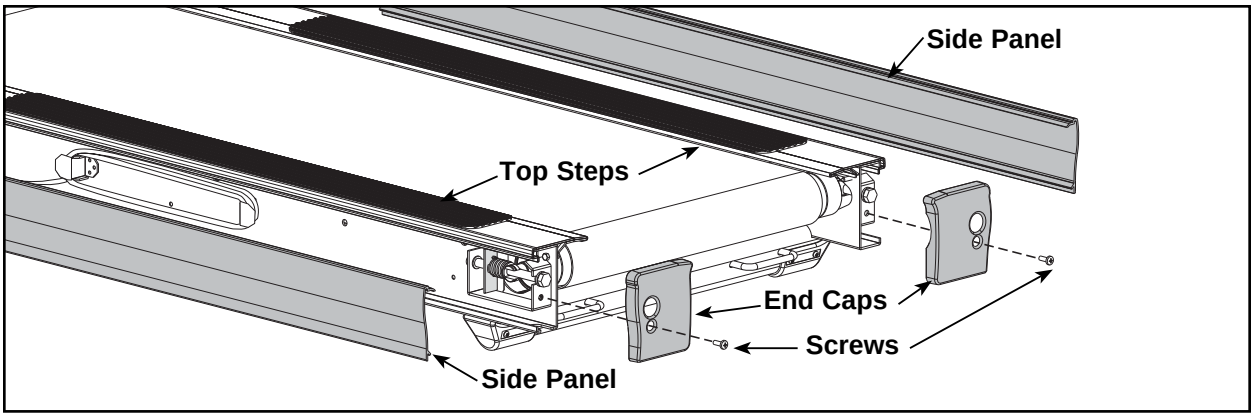


Figure 3

4. Remove the side panels.

A. Pull each side panel out and off the treadmill. See Figure 3.

5. Remove the top steps.

A. Using a Phillips screwdriver, remove the three screws that hold each top step in place. See Figure 4.

B. Grasp each top step and lift it out and off the treadmill. See Figures 3 and 4.

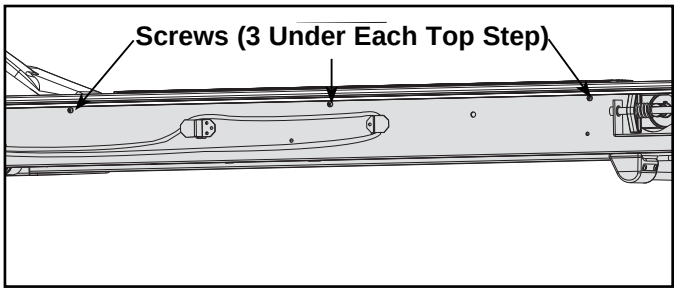


Figure 4

6. Check the belt and deck condition.

A. Look at the edges of the belt while you roll it by hand. If the belt has any rips or looks excessively worn the belt needs to be replaced.

B. Run your hand under the belt on the top of the deck surface. If you feel excessive ridges or cracks, or if the deck feels grooved yet highly polished, the deck should be flipped to an unused surface or replaced. In time, a worn belt and deck can cause high current draw and ultimately, motor failure. ***NOTE:*** *When replacing the deck, replace the belt at the same time.* For instructions on replacing the belt and deck, see Running Belt and Deck in the Service chapter.

7. Clean under the belt.

A. To minimize the effect of friction between the deck and the running belt, Cybex recommends cleaning the underside of the running belt and the top of the running deck surface by wiping them with a clean, dry towel. This cleaning should be done each time you check the belt and deck condition to prevent premature wear of the deck, running belt and the drive motor system. See the Service Schedule in this chapter.

8. **Secure the top steps.**

   A. Place each top step in position. See Figure 4.

   B. Using a Phillips screwdriver, tighten the three screws that hold each top step in place. See Figure 4.

9. **Secure the end caps.**

   A. Using a Phillips screwdriver, tighten the screw securing each end cap in place. See Figure 3.

10. **Secure the side panels.**

    A. Place each side panel into position slightly under the end cap and use your hand to push all along the bottom edge of the side panel to snap it in place. See Figure 3.

11. **Secure the motor cover.**

    A. Lower the motor cover center into position. See Figure 2.

    B. Using a Phillips screwdriver, tighten the three screws on each side. Be sure the screws are catching the center motor cover's holes.

Other Preventive Maintenance

Other preventive maintenance activities must be completed by a qualified service technician at the recommended intervals listed in the Service Schedule (shown on the next page). These activities include:

- Measure the motor brushes and replace worn motor brushes
- Rotate and replace the running deck
- Replace the running belt
- Check the current draw
- Measure motor voltage at maximum speed, with no load

NOTE: *See the Service chapter of this manual for detailed procedures for the maintenance activities listed above.*

Elevation Motor Lubrication — In time the elevation motor pivot points may develop a squeak. Lubricate the upper and lower bolts and the spacers with a small amount of lithium grease. ***NOTE:*** *You can buy lithium grease at an auto parts store.*

Static Electricity – Depending upon where you live, you may experience dry air, causing a common experience of static electricity. This may be especially true in the winter time. You may notice a static build-up just by walking across a carpet and then touching a metal object. The same can hold true while working out on your treadmill. You may experience a shock due to the build-up of static electricity on your body and the discharge path of the treadmill. If you experience this type of situation, you may want to increase the humidity to a comfortable level through the use of a humidifier. A worn running belt looses it's ability to dissipate static electricity and should be replaced as needed.

Service Schedule

All maintenance activities shall be performed by qualified personnel. Failure to do so could result in serious injury.

NOTE: *This is the minimum recommended service.*

1. Determine mileage.

A. While in *Dormant Mode* enter *Test Mode* by holding down any key while turning the treadmill to the on (I) position.

B. Press the **DIST** button to display **"DIST"** and miles or kilometers will be displayed.

C. Record Mileage.

NOTE: *To exit Test Mode, press the* ***Stop*** *key .*

First 500 miles (800 km).

- Check running belt tension and tracking.

Every 5,000 miles (8,000 km).

- Check running belt tension and tracking.
- Move treadmill and vacuum underneath.
- Remove motor cover to clean underneath with a dry cloth and vacuum.

Every 10,000 miles (16,090 km).

- Replace running belt and flip deck.
- Check motor brushes and replace if needed.
- Check current draw.
- Measure motor voltage at max speed with no load.
- Check elevation assembly and replace worn parts.
- Lubricate elevation pivot points.

Every 20,000 miles (32,180 km).

- Replace running belt and deck.

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3 - Customer Service

Contacting Service

Hours of phone service are Monday through Friday from 8:30 a.m. to 6:00 p.m. Eastern Standard Time.

For Cybex customers living in the USA, contact Cybex Customer Service at **888-462-9239**.

For Cybex customers living outside the USA, contact Cybex Customer Service at **508-533-4300** or fax **508-533-5183**.

Find information on the web at www.cybexinternational.com or by e-mail at techhelp@cybexintl.com.

Serial Number and Voltage

Your serial number and voltage can be found on the front of your treadmill. See Figure 1. For your convenience record your serial number and voltage below so that you will have it ready if you call Cybex Customer Service.

Serial Number_____ Voltage _____

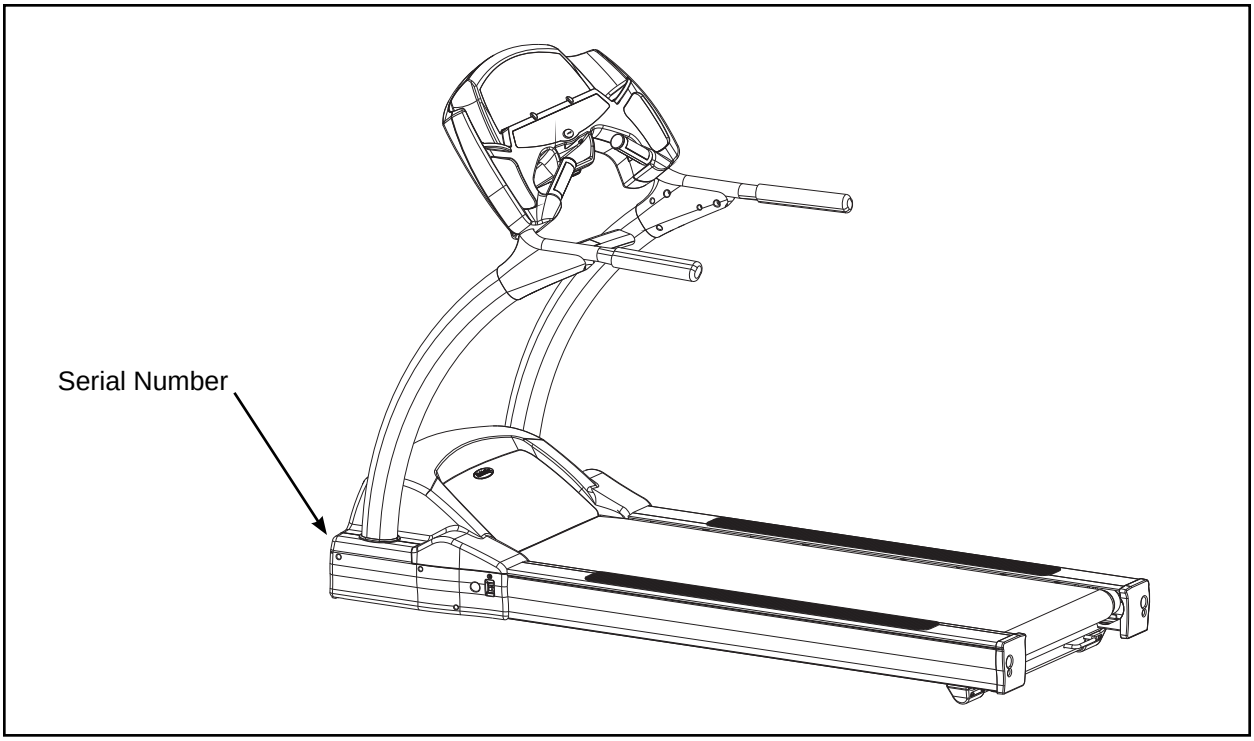


Figure 1

Return Material Authorization (RMA)

The Return Material Authorization (RMA) system outlines the procedures to follow when returning material for replacement, repair, or credit. The system assures that returned materials are properly handled and analyzed. Follow the following procedures carefully.

Contact your authorized Cybex dealer on all warranty-related matters. Your local Cybex dealer will request an RMA from Cybex, if applicable. Under no circumstances will defective parts or equipment be accepted by Cybex without proper RMA and an Automated Return Service (ARS) label.

1. Call the Customer Service Hotline listed above for the return of any item that is defective.
2. Provide the technician with a detailed description of the problem you are having or the defect in the item you wish to return.
3. Provide the model and serial number of your treadmill. The serial number is located on the front panel of your treadmill. The serial number begins with a letter, for example: R09-101331100.
4. At Cybex's discretion, the technician may request that you return the problem part(s) to Cybex for evaluation and repair or replacement. The technician will assign you an RMA number and will send you an ARS label. The ARS label and RMA number must be clearly displayed on the outside of the package that contains the item(s) to be returned. Include a description of the problem, the serial number of the treadmill and the name and address of the owner in the package along with the part(s).
5. Forward the package through UPS to Cybex.
   Attn: Customer Service Department
   Cybex International, Inc.,
   10 Trotter Drive
   Medway, MA 02053

NOTE: *Merchandise returned without an RMA number on the outside of the package or shipments sent C.O.D. will not be accepted by the Cybex receiving department.*

Damaged Parts

Materials damaged in shipment should not be returned for credit. Shipping damages are the responsibility of the carrier (UPS, Federal Express, trucking companies, etc.)

Apparent Damage – Upon receipt of your shipment, check all boxes carefully. Any damage seen with a visual check must be noted on the freight bill and signed by the carrier's agent. Failure to do so will result in the carrier's refusal to honor your damage claim. The carrier will provide you with the required forms for filing such claims.

Concealed Damage – Damage not seen with a visual check upon receipt of a shipment but noticed later must be reported to the carrier as soon as possible. Upon discovery of the damage, a written or phone request to the carrier asking them to perform an inspection of the materials must be made within ten days of the date of delivery. Keep all shipping containers and packing materials: they will be needed as part of the inspection process. The carrier will provide you with an inspection report and the necessary forms for filing a concealed damage claim. Concealed damage is the carrier's responsibility.

Ordering Parts

Fax orders to **508-533-5183**. To speak with a customer service representative, call **888-462-9239** (for customers living within the USA) or **508-533-4300** (for customers outside the USA).

⚠ CAUTION

Use only Cybex replacement parts when servicing. Failure to do so could result in personal injury.

Cybex will void warranty if non-Cybex replacement parts are used.

4 - Service

Warnings/Cautions

All warnings and cautions listed in this chapter are as follows:

! WARNING: All maintenance activities shall be performed by qualified personnel. Failure to do so could result in serious injury.

! CAUTION: Use only Cybex replacement parts when servicing. Failure to do so could result in personal injury.

! WARNING: Disconnect the power cord before beginning this procedure.

! WARNING: Do not touch components on the lower board. A charge can remain after unplugging the power cord and turning off the treadmill.

! CAUTION: The belt will be jerky during the next step. Hold the handrail to support yourself.

! CAUTION: During this procedure STAY OFF THE RUNNING BELT! Stand with your feet on the two steps.

! WARNING: Disconnect the power cord before beginning this procedure. Keep wet items away from inside parts of the treadmill. Electrical shock could occur even if the treadmill is unplugged. Do not touch components on the lower board. A charge can remain after unplugging the power cord and turning off the treadmill.

! CAUTION: If the drive motor is warm wait until it is cool to the touch before proceeding. The inside components may be hot.

! WARNING: Keep the motor dry. Do not get the inside of the motor wet.

! WARNING: Wait until the armature LED is off before removing the motor brush covers.

! WARNING: Disconnect the power cord before beginning this procedure. Keep wet items away from inside parts of the treadmill. Electrical shock could occur even if the treadmill is unplugged.

! CAUTION: A minimum of two people will be required to properly lift the treadmill. Always use proper lifting methods when moving heavy items.

! WARNING: All maintenance activities shall be performed by qualified personnel. Failure to do so could result in serious injury.

For any service related concerns, call Cybex Customer Service at 888-462-9239 (for Cybex customers living within the USA). For customers living outside the USA, call 508-533-4300 or fax 508-533-5183.

NOTE: *Read and understand each procedure thoroughly before servicing. Unless otherwise noted "right" and "left" denote user orientation for all procedures.*

⚠ CAUTION

Use only Cybex replacement parts when servicing. Failure to do so could result in personal injury.

Cybex will void warranty if non-Cybex replacement parts are used.

Test Mode

To enter ***Test Mode*** press and hold down any key on the display while turning the power switch to the on (I) position. When all keys are released "PRO" and the software revision "rx.x" are shown on the display. To exit *Test Mode* press **Stop**.

Stuck Key List

If Test Mode occurs without holding any keys, a key may be stuck closed or Error 7 may have occurred. You may need to replace the upper and/or lower display overlay. See Figure 1. If "KEY#" is displayed you can determine which key is stuck closed by referring to the number list below.

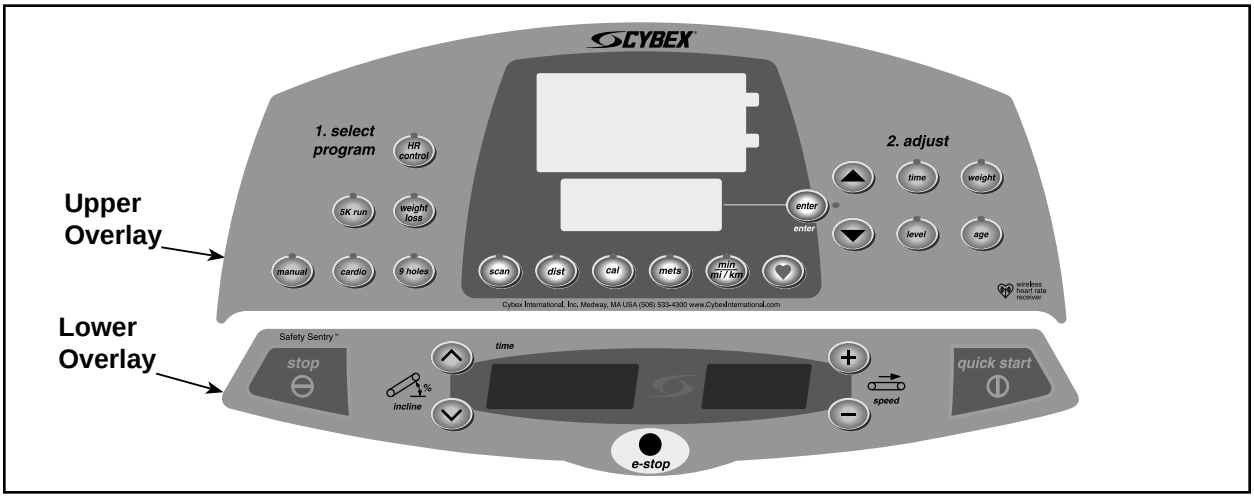


Figure 1

1	Stop	7	Heart Rate	12	Center Up	17	Enter	22	Time
2	Incline Down	8	Manual Up	13	9 Holes	18	Cardio	23	Scan
3	Speed Down	9	Incline	14	Level	19	Center Down	24	Age
4	Weight	10	Speed Up	15	Mets	20	Calories	25	Min Mi/Km
5	Distance	11	Quick Start	16	5K	21	HR Control	26	Weight Loss

LED Functions

LEDs are used to indicate the status of many of the treadmill inputs. After entering *Test Mode* refer to the following list to check that these LEDs are functioning properly:

Heart LED – Blinks on with every signal from the contact heart rate receiver.
Weight LED – Blinks on when CSAFE data is being received.
Level LED – Blinks on when CSAFE data is being transmitted.
Lower Left Window – The numbers indicate actual elevation. A '-' sign indicates the treadmill is below 0% grade. The decimal point before the numbers shows the activation of the 0% switch in the elevation motor (on above 0%). If dashes are shown in the display, the treadmill is either above or below the 0% switch, requiring it to be manually run through the switch to begin indicating actual elevation. The right most decimal point indicates the status of the E-stop relay, on when the E-stop relay is on, off when it is deactivated. ***NOTE:*** *The right most decimal point may be difficult to see. Lean your head to the left to see this.*
Lower Right Window – The numbers indicate actual belt speed. The right most decimal point indicates the pulses from the speed sensor on the motor.

Key Functions

While in *Test Mode* press the following keys for desired information:

Quick Start – Starts the belt at 1.0 mph (1.0 kph). Also will run calibration if held for 3 seconds.
Heart Rate Program key – Lights all of the LEDs for a short period of time.
Weight Loss key – Lights only the columns.
9 Holes key – Lights only the rows.
Incline ⬆ – Run elevation motor up.
Incline ⬇ – Run elevation motor down.
Speed + – Increase drive motor speed.
Speed - – Decrease drive motor speed.
Distance – Press once for odometer information (DST) to appear in the speed window.
Press again for hourmeter information (HRS) to appear in the speed window.
Press three times for number of starts information (USES) to appear in the speed window.
Press four times for brush wear mileage up to 100 miles since activated or “0” if it has not been activated (BRSH).
Min Mi/Km – Displays and cycles through error log. Up to 10 errors can be stored.
Scan – Clears error log when pressed twice while in error log mode.
Mets – Value of motor load in A/D counts. The number range is relative to motor current and goes from 0-225. (LOAD).
Calories – Displays motor pulse width (PWM) value.
Enter – Required to save setup values.

Error Codes

Error codes notify you of a problem condition and are displayed on the center of the console. These codes can also help to indicate the part of the treadmill most likely to be causing the problem. Errors that present a hazard to the user provide a measure of safety by causing a one second beep, stopping the treadmill and locking out operation of the treadmill.

A log of errors can be viewed and cleared. Enter *Test Mode* and press the **Pace** (Min/km) key to display the log. The most recent error is always first in the log. Press the **Pace** key again to cycle to the next the error stored. Up to 10 errors can be stored. Press the **Scan** key twice to clear the error log. Press **Stop** to exit *Test Mode*.

NOTE: *A processor upset can cause a bAd#. See H then G.*

Error	**Description**
bAd0	Bad checksum. See H then G.
bAd2	Internal RAM error. See H then G.
bAd3	Watchdog timeout. See H then G.
Err1	Belt didn't start (or no speed sense). See I, E, D, B then A.
Err2	Underspeed (2 mph for 2 seconds without correction in process). See I, E, C then B.
Err3	Speed sense lost. See I, E, A, B and C.
Err5	No 0 switch sense within timed limits. This is declared when the timed elevation reaches -2% without tripping the index. See F and A.
Err6	Overspeed (1 mph for 1 second or 2 mph for 0.2 seconds without correction). See I, E.
Err7	EEPROM error (memory lost, loads new defaults, enters *Test Mode*). See G.
Err9	Brush wear too low. Indicator has been activated for over 100 miles. See D.
ErrE	0% always on (or switch disconnected or wired backwards). This means that timed elevation has gone up 2% and the index is still sensed. See F.

Action	
A	Check lower board
B	Check drive motor
C	Check belt and deck
D	Check motor brushes
E	Check speed sensor
F	Check elevation motor
G	Replace display board
H	Turn the treadmill to the off (O) position and back on (I)
I	Perform speed calibration procedure

Motor Current and Voltage

Motor current draw and motor voltage must be checked by a qualified service technician at the recommended intervals listed in the *Service Schedule* in the *Preventive Maintenance* chapter of this manual. For your convenience a service schedule decal is provided under the motor cover of each Cybex Pro+ treadmill. By performing these procedures you can evaluate the performance of your drive motor and help prevent premature failure.

Tools Required

- Phillips screwdriver
- Voltage meter

1. Measure current draw.

A. Enter *Test Mode* by holding down any key on the display while turning the power switch to the on (I) position.

B. Press the **Quick Start** key. The belt will move at 1 mph (1.0 kph).

C. Without standing on the belt, bring the speed of the treadmill up to 3 mph (4.8 kph), Press the **METs** key and take note of the load value in the top center display.

D. Have a second person walk on the belt at 3 mph (4.8 kph) and take note of the load value in the top center display and the weight of the person. ***NOTE:*** *Call Cybex Customer Service to confirm that the load is within acceptable range. Loads over 200 are generally unacceptable.*

E. Press **Stop** to exit *Test Mode*.

2. Disconnect the external power source.

A. Turn the main power switch on the left side to the off (O) position.

B. Unplug the treadmill from the power outlet.

3. Remove the motor cover.

A. Using a Phillips screwdriver, loosen three screws on each motor cover side (left and right). See Figure 2.

B. Lift the motor cover center up and off the treadmill. The screws will stay in place.

4. Check the belt and deck condition.

A. Follow the *Checking Belt and Deck Surfaces* procedure on page 4-4 of the *Preventive Maintenance* chapter of this manual and then proceed with step 5.

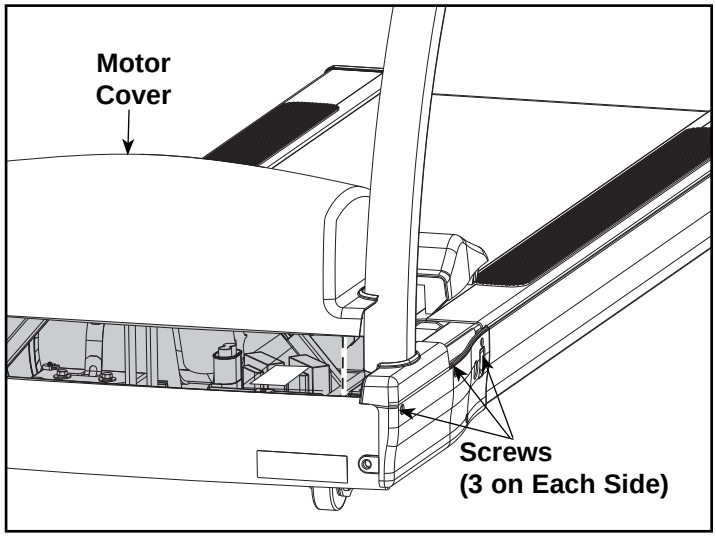


Figure 2

5. **Check the motor voltage.**

   A. Plug the treadmill back in and turn it to the on (I) position.

   B. Enter *Test Mode.*

   C. Without standing on the belt, Bring the speed of the treadmill up to maximum speed, 12.4 mph (20 kph).

   D. Using a voltage meter, contact the meter's red lead to the connector of the motor's red lead and the meter's black lead to the motor's black lead on the lower board.

   E. Note the reading on the voltage meter then carefully remove both leads. Call Cybex Customer Service to find out if the reading is within an acceptable range.

   F. Exit *Test Mode* by pressing **Stop**.

6. **Attach the motor cover.**

   A. Lower the motor cover center into position. See Figure 2.

   B. Using a Phillips screwdriver, tighten the three screws on each side.

Speed Sensor Adjustment

Tools Required

- Phillips screwdriver
- 1/4" Socket wrench
- 7/16" Open end wrench

! WARNING: Disconnect the power cord before beginning this procedure.

1. **Disconnect the external power source.**

   A. Turn the main power switch on the left side to the off (O) position.

   B. Unplug the treadmill from the power outlet.

2. **Remove the motor cover.**

   A. Using a Phillips screwdriver, loosen three screws on each motor cover side (left and right).

   B. Lift the motor cover center up and off the treadmill. ***NOTE:*** *The screws will stay in place.*

3. **Visually inspect the drive motor fan.**

   A. Turn the flywheel slowly and look for dirt or damage to the drive motor fan.
   NOTE: *If the drive motor fan or speed sensor is dusty use a soft dry cloth to wipe off the dust.*

   A. Using a 1/4" Socket wrench, tighten the mounting screw that attaches the drive motor fan to the drive motor shaft. See Figure 3.

4. **Visually inspect the speed sensor.**

   A. Inspect the speed sensor and look for dirt or damage to the speed sensor or speed sensor mounting bracket. ***NOTE:*** *If the speed sensor is dusty use a soft dry cloth to wipe off the dust.*

B. Using a 7/16” Open end wrench, tighten the mounting nut that attaches the speed sensor bracket to the drive motor. See Figure 3.

C. Ensure that the gap between the speed sensor and drive motor fan is even on both sides. See Figure 3.

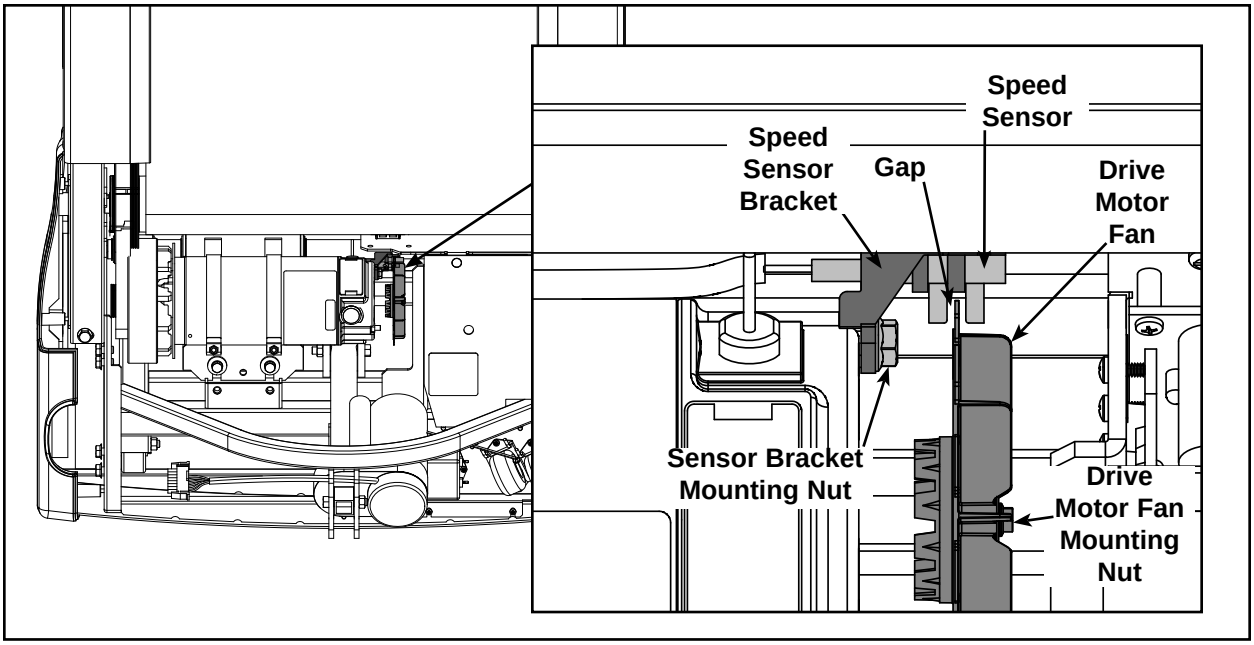


Figure 3

5. Test for speed errors.

A. Connect the power cord to a power outlet.

B. Enter *Test Mode.*

C. Bring the speed of the treadmill up to maximum speed, 12.4 mph (20 kph).

D. After reaching maximum speed take note of the actual speed that is displayed in the lower left window. If it fluctuates in over 0.5 mph increments then your speed sensor gap needs to be inspected.

E. Slowly adjust the speed down to 1.0 MPH (1.0 KPH).

F. Press **Stop** and turn the power switch to the off (O) position.

G. Enter *Test Mode* again and check the error log for Error 3. If Error 3 occurred readjust the speed sensor and test again. ***NOTE:*** *If you are unsure whether an error is new you can clear the error log by pressing the Scan key and then repeat steps 4A through 5F.*

H. Exit *Test Mode* by pressing **Stop**.

6. Attach the motor cover.

A. Lower the motor cover center into position. See Figure 2.

B. Using a Phillips screwdriver, tighten the three screws on each side.

IR Compensation

NOTE: *This procedure is required after replacing the lower control board or the drive motor.*

Tools Required

- Phillips screwdriver
- Plastic (or non-conductive), flat head screwdriver

1. Please read instructions thoroughly before performing this procedure.

2. Remove the motor cover.

A. Using a Phillips screwdriver, loosen three screws on each motor cover side (left and right). See Figure 2.

B. Lift the motor cover center up and off the treadmill. The screws will stay in place. See Figure 2.

3. Perform the IR compensation procedure.

A. Enter *Test Mode* by pressing and holding down any key on the display while turning the power switch to the on (I) position. When the key is released “PRO” and the software revision “rx.x” are shown on the display.

B. While standing on the side rails, press **Start** and then press the **Speed Up** key once to set the treadmill speed to 1.0 mph (1.0 kph).

! WARNING: Do not touch components on the lower board. A charge can remain after unplugging the power cord and turning off the treadmill.

! CAUTION: The belt will be jerky during the next step. Hold the handrail to support yourself.

C. Hold on to the handrails as you step on the running belt, begin walking and notice how the belt feels, (the belt may surge, vibrate or slack). ***NOTE:*** *If the belt doesn't need to be adjusted skip to step 4A.*

D. Pull up on the lower board shield. It will snap out. ***NOTE:*** *Newer versions of the shield will have a hole directly over the IR compensation. If you have the new shield, place the plastic screwdriver through the hole to adjust the IR compensation instead of removing the shield.*

E. Locate the control called “IR COMP” on the lower board. ***NOTE:*** *DO NOT use a metal screwdriver. DO NOT adjust the other two controls that look identical to the IR COMP control.*

F. Using a plastic small flat head screwdriver, turn the IR control slightly in one direction as follows:
- Turn clockwise to remove the slack from the belt
- Turn counter-clockwise to remove the vibration or surging from the belt

G. Retest by walking on the belt and adjusting the IR COMP control until the running belt does not surge, vibrate or feel too slack. ***NOTE:*** *You should not be able to stop the belt with your feet easily.*

H. Press **Stop**.

I. Place the lower board shield into position (if applicable) and snap it in.

4. Secure the motor cover.

A. Lower the motor cover into position. See Figure 2.

B. Using a Phillips screwdriver, tighten the three screws on each side. ***NOTE:*** *Be sure the screws are catching the center motor cover's holes.*

Speed Calibration

NOTE: *This procedure is required after replacing the upper display board, the lower control board or the drive motor. If you've replaced the lower board, perform the IR Compensation procedure first, then the Speed Calibration procedure.*

1. Calibrate the speed.

A. Stay off the running belt during this procedure.

! CAUTION: During this procedure STAY OFF THE RUNNING BELT! Stand with your feet on the two steps.

B. In *Test Mode* press and hold the **Quick Start** key for three seconds. The display will show "CAL" then "SAV", "CAL". The running belt will accelerate and when completed the display will show "PRO". Press **Stop** to exit *Test Mode*. ***NOTE:*** *This procedure should be completed after replacing the upper display board, the lower control board or the drive motor. If you press* **Stop** *during this procedure the calibration will not be stored. Exiting Test Mode while the belt is moving may generate an error condition.*

Running Belt and Deck

NOTE: *During this procedure you will have the option to remove the running deck, running belt, rubber mounts, rear roller, front roller and drive belt. Follow this procedure from step 1 even though the heading for some of these procedures will appear before the step where you remove that part.*

Tools Required

- Phillips screwdriver
- 7/16” Open end wrench
- 3/4” Open end or socket wrench
- 9/16” Socket wrench with a 3” extension

! WARNING: Disconnect the power cord before beginning this procedure.

1. **Disconnect the external power source.**

   A. Turn the main power switch on the left side to the off (O) position.

   B. Unplug the treadmill from the power outlet.

2. **Remove the motor cover.**

   A. Using a Phillips screwdriver, loosen the three screws on each motor cover side (left and right). See Figure 2.

   B. Lift the motor cover center up and off the treadmill. ***NOTE:*** *The screws will stay in place.* See Figure 2.

3. **Remove the end caps.**

   A. Using a Phillips screwdriver, remove the screw that holds each end cap in place. See Figure 4.

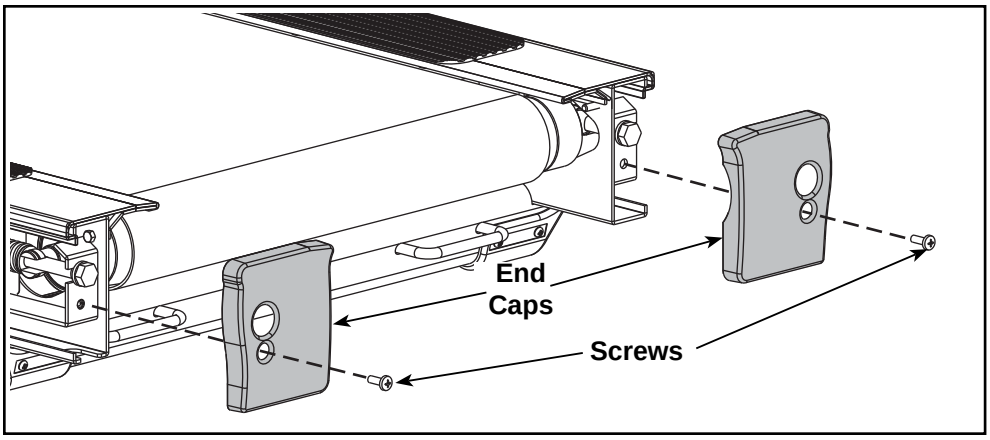


Figure 4

4. **Remove the side panels.**

   A. Pull each side panel out and off the treadmill. See Figure 5.

5. **Remove the top steps.**

   A. Using a Phillips screwdriver, remove the three screws that hold one of the top steps in place. Repeat this step for the other side. See Figure 5.

   B. Grasp each top step and slide it out and off the treadmill. See Figure 5.

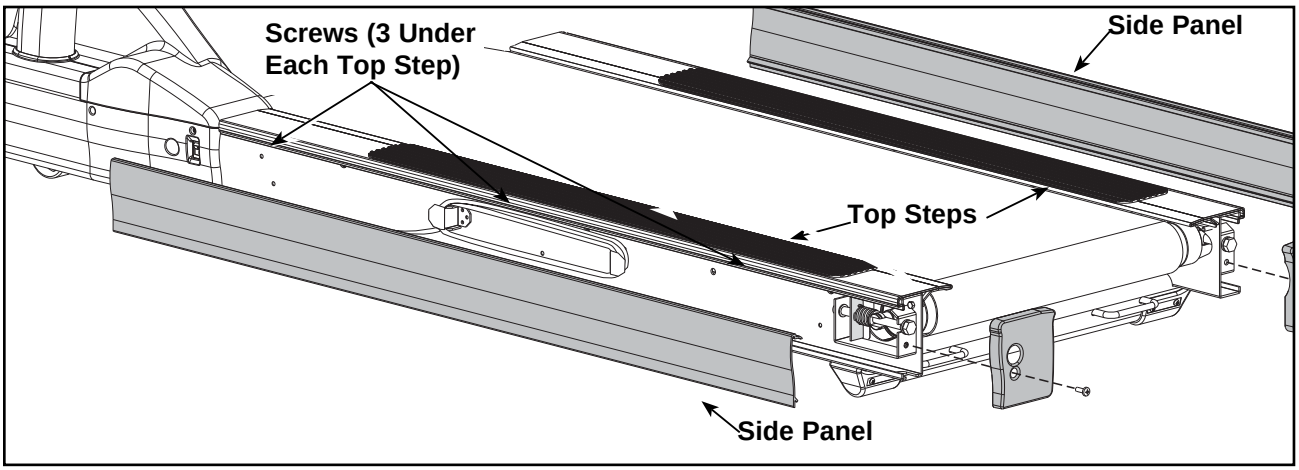


Figure 5

Rear Roller

6. **Remove the rear roller.**

   A. Using a 3/4” open end or socket wrench, loosen the two rear roller bolts (one roller bolt on each side). ***NOTE:*** *Loosen each bolt evenly, making sure not to loosen either bolt too many turns before moving to the other bolt.* See Figure 6.

   B. While holding the rear roller, remove the hardware from each side. ***NOTE:*** *Pivot the bolt, washers, spring and nut holder out together.* See Figure 6.

   C. Lift one side of the rear roller and slide the roller out of the running belt. See Figure 6.

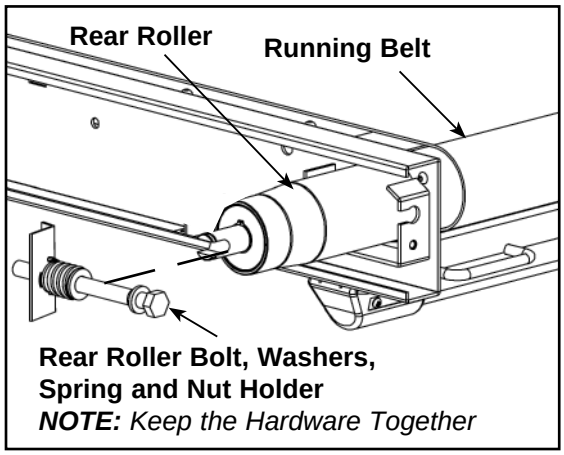


Figure 6

7. Remove the deck.

A. Using a 7/16” open-end or socket wrench, remove the ten screws and ten washers that hold the deck in place. See Figure 7.

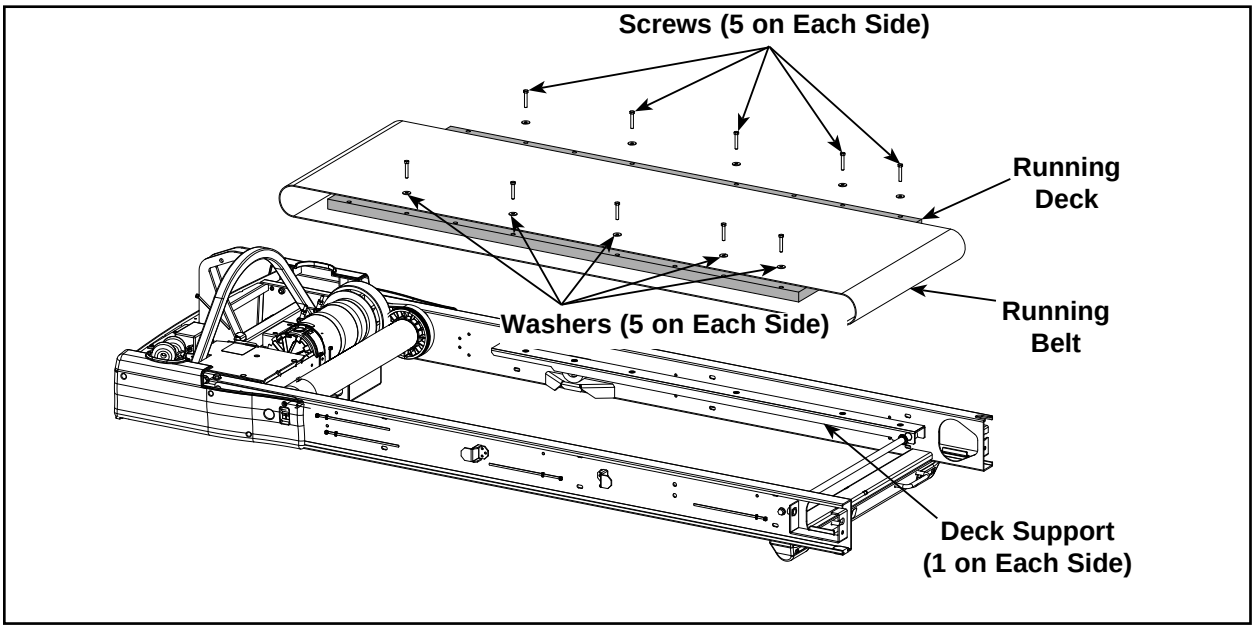


Figure 7

8. Remove the deck stiffeners.

A. Using a 1/2” Socket wrench, remove the two whiz-lock screws that secure the deck pivot shaft to the frame. See Figure 8.

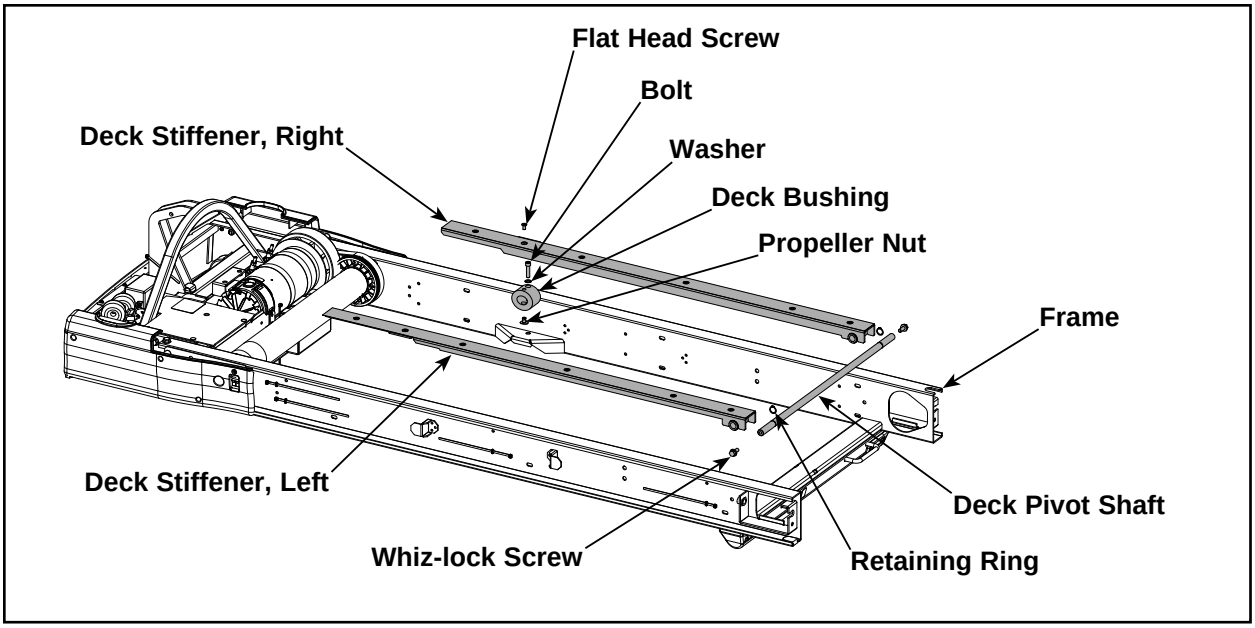


Figure 8

B. Using a Phillips screwdriver, remove the flat head screw securing each deck stiffener to the deck bushing. See figure 8.

9. Inspect the deck bushings.

A. Inspect the deck bushings under the deck stiffeners for cracks or wear. ***NOTE:*** *Replace the rubber mounts if the rubber is cracked or worn.*

B. Using a Phillips screwdriver, secure each deck stiffener with the flat head screws removed in step 8B.

C. Using a 1/2" Socket wrench, install the two whiz-lock screws that secure the deck pivot shaft to the frame. See Figure 8.

Front Roller

10. Remove the front roller.

A. Place a 9/16" socket wrench with a 3" extension in the left front roller access hole. Remove the left front roller screw. See Figure 9.

B. Place a 9/16" socket wrench with a 3" extension in the right front roller access hole. Remove the right front roller screw.

C. Slide the drive belt off of the front roller and remove the front roller.

11. Remove the running deck and running belt.

A. Lift one side of the deck and slide it out of the running belt.

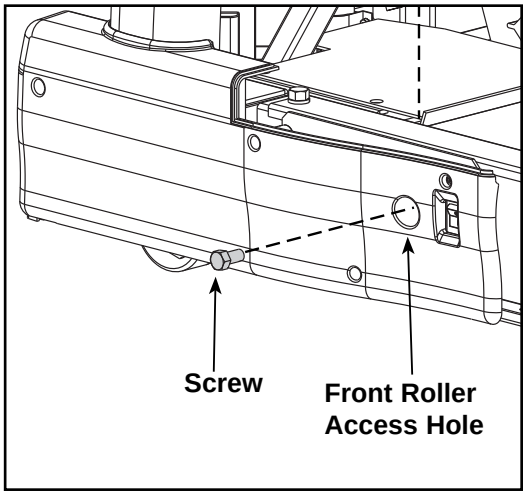


Figure 9

Drive Belt

NOTE: *If you are replacing the drive belt follow steps 12-13 and 15. If not, skip to step 14. See the Drive Motor procedure for an alternative way to change the drive belt.*

12. Release the drive belt tension.

A. Using a 1/2" socket wrench, loosen but do not remove the two screws on the motor saddle. See Figure 10.

13. Remove the drive belt.

A. If you are changing the drive belt, slip the drive belt around the flywheel pulley and off the motor. See Figure 10.

B. Slide the new drive belt around the flywheel pulley. ***NOTE:*** *There will be some slack in the drive belt until step 15 is complete.*

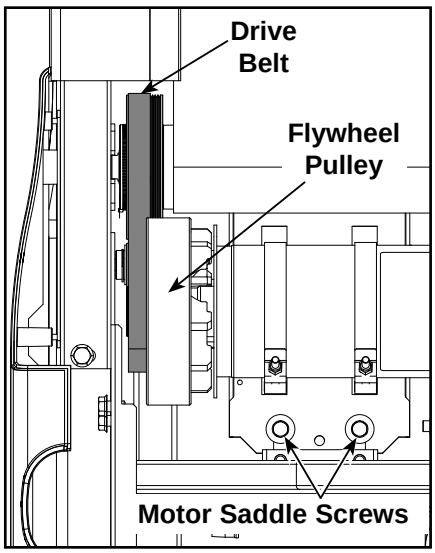


Figure 10

14. Secure the front roller.

A. Slide the front roller into the running belt. ***NOTE:*** *It doesn't matter which way the running belt goes.*

B. Be sure the drive belt is around the flywheel pulley and the front roller before attaching the front roller.

C. Using a 9/16" socket wrench with a 3" extension, attach the two screws that fasten the front roller to the frame. ***NOTE:*** *Tighten each of the two screws evenly, making sure not to tighten one screw too many turns before moving to the other screw.*

D. Confirm that the drive belt fills all grooves in the drive motor flywheel pulley and there are open grooves on the inside of the front roller. See Figure 11. ***NOTE:*** *Failure to align the drive belt could cause squeaking.*

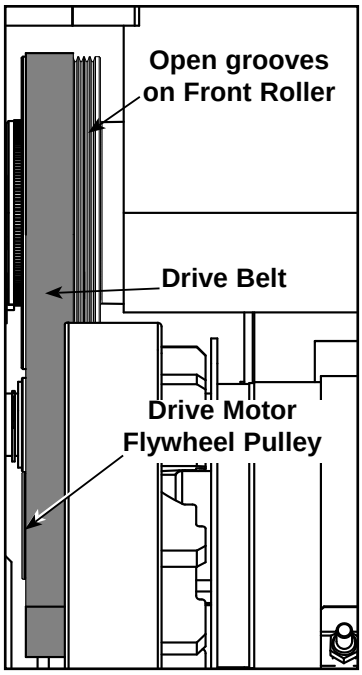


Figure 11

15. Secure the drive belt tension.

NOTE: *Follow this step only if you replaced the drive belt.*

A. Using a 1/2" socket wrench, tighten the two screws on the motor saddle. See Figure 10.

16. Secure the running deck.

A. Place the deck in position as noted in step 11A. ***NOTE:*** *Make a note of the service you performed on the Service Schedule under the motor cover.*

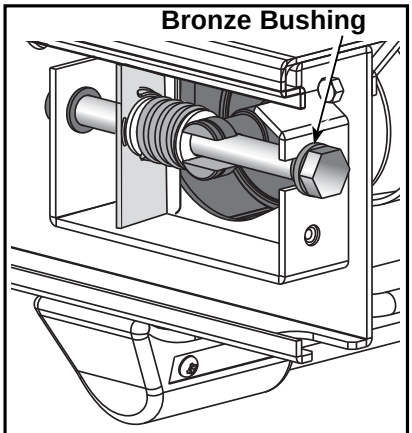
B. Using a 7/16" open end or socket wrench, attach the ten washers and screws that hold the deck to the treadmill frame. See Figure 7.

17. Secure the rear roller.

A. Slide the rear roller into the running belt. See Figure 6.

B. Slide the hardware for each side into position. ***NOTE:*** *Place the end of the bolt in first and then hold the rear roller up while you pivot the group of hardware into the rear roller slot. Be sure the bronze bushing is touching the head of the bolt.* See Figure 12.

C. Using a 3/4" socket wrench, tighten each rear roller bolt evenly, making sure not to tighten either bolt too many turns before moving to the other bolt. ***NOTE:*** *Do not overtighten the belt. You will tension and center the belt in step 22.* See Figure 12.



NOTE: *Be sure the bronze bushing is touching the head of the bolt.*

Figure 12

18. Secure the top steps.

A. Place each top step in position. See Figure 5.

B. Using a Phillips screwdriver, secure the three screws that hold each top step in place. See Figure 5.

19. Secure the side panels.

A. Place each side panel into position on the bottom edge and use your hand to push all along the top edge of the side panel to snap it in place. See Figure 5.

20. Secure the end caps.

A. Using a Phillips screwdriver, tighten the screw that holds each end cap in place. See Figure 4.

21. Secure the motor cover.

A. Lower the motor cover center into position. See Figure 2.

B. Using a Phillips screwdriver, tighten the three screws on each side. ***NOTE:*** *Be sure the screws are catching the center motor cover's holes.*

22. Adjust the running belt tension and tracking.

A. Follow the *Tension and Center the Belt* procedure located in the *Preventive Maintenance* chapter of this manual.

Drive Motor

NOTE: *This procedure will cover the drive motor, drive belt and motor brushes.*

Tools Required

- Phillips screwdriver
- 7/16" Open end wrench
- 7/16" Socket wrench with a deep socket
- 1/2" Socket wrench
- 3/4" Socket wrench
- 9/16" Socket end wrench with a 3" extension
- Needle nose pliers

! WARNING: Disconnect the power cord before beginning this procedure. Keep wet items away from inside parts of the treadmill. Electrical shock could occur even if the treadmill is unplugged. Do not touch components on the lower board. A charge can remain after unplugging the power cord and turning off the treadmill.

1. Disconnect the external power source.

A. Turn the main power switch on the left side to the off (O) position.

B. Unplug the treadmill from the power outlet.

2. Remove the motor cover.

A. Using a Phillips screwdriver, loosen three screws on each motor cover side (left and right). See Figure 2.

B. Lift the motor cover center up and off the treadmill. The screws will stay in place. See Figure 2.

3. Release the drive belt tension.

A. Using a 1/2" socket wrench, loosen (but do not remove) the two screws on the motor saddle. See Figure 13. ***NOTE:*** *The tension is now released.*

4. Remove the old drive motor.

A. Using 7/16" open end wrench, remove the nut on each motor strap and remove the motor straps from the motor saddle. See Figure 13.

B. Slip the drive belt around the flywheel pulley and off the motor. See Figure 14.

5. Disconnect the motor cables.

! WARNING: Do not touch components on the lower board. A charge can remain after unplugging the power cord and turning off the treadmill.

A. Observe the “armature LED” on the lower board (labeled ILT4).

B. After the armature LED goes off proceed to step 5C.

C. Pull up on the lower board shield. It will snap out.

D. Disconnect the motor cables from the lower board. ***NOTE:*** *You will disconnect three wires (red, black and yellow).* See Figure 14.

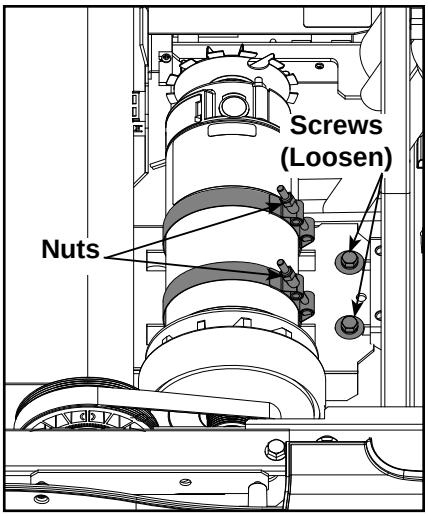


Figure 13

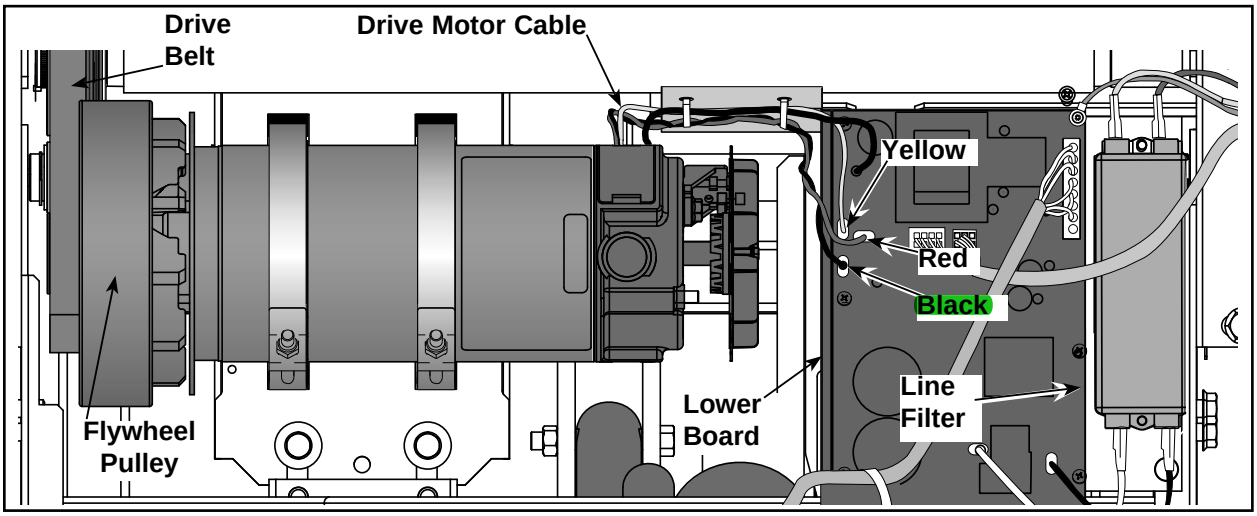


Figure 14

E. Remove the ferrite from the drive motor cables (International units only).

F. Carefully remove the drive motor.

NOTE: *If you are replacing the drive belt with a new one follow step 6B - 8A. If not, skip to step 8.*

6. Remove the drive belt (optional).

A. Using a 3/4” socket wrench, loosen each rear roller bolt 10-12 revolutions to release tension on the running belt.

B. Using a 9/16” socket wrench with a 3” extension, remove the two front roller screws. See Figure 9.

C. Tilt the left side of the front roller up and then the right side.

D. If you are replacing the drive belt, slip the drive belt off the front roller pulley and discard it.

7. Attach the front roller.

A. Slide the new drive belt around the front roller.

B. Using a 9/16” socket wrench with a 3” extension, insert the two screws that fasten the front roller to the frame. ***NOTE:*** *Tighten each of the two screws evenly, making sure not to tighten one screw too many turns before moving to the other screw.* See Figure 9.

8. Secure the rear roller bolts.

A. Using a 3/4” socket wrench, tighten each rear roller bolt evenly, making sure not to tighten either bolt too many turns before moving to the other bolt. ***NOTE:*** *Do not overtighten the belt. Follow the Tension and Center the Belt procedure located in the Preventive Maintenance chapter.*

Motor Brushes

NOTE: *Motor brushes are wear items that will periodically need to be replaced. Both drive motor brushes must be replaced as a pair. This will ensure even commutator contact and brush wear. Therefore, always measure both brush lengths to determine whether you should replace the pair. Check both brushes for cracks or chips.*

NOTE: *When “Err9” appears on screen it indicates excessive motor brush wear. The treadmill will run 100 miles (161 kilometers) longer and then be inoperable until brushes are replaced.*

! CAUTION: If the drive motor is warm wait until it is cool to the touch before proceeding. The inside components of the drive motor may be hot.

! WARNING: Keep the motor dry. Do not get the inside of the motor wet.

NOTE: *If you are checking and/or replacing the motor brushes follow steps 9-13. If not, skip to step 14.*

! WARNING: Wait until the armature LED is off before removing the motor brush covers.

9. Check the armature LED.

A. Observe the “armature LED” on the lower board (labeled ILT4).

B. After the armature LED goes off proceed to step 10.

10. Remove the drive motor brush access covers.

A. Squeeze each of the two rectangular brush covers to remove it from the motor. See Figure 15.

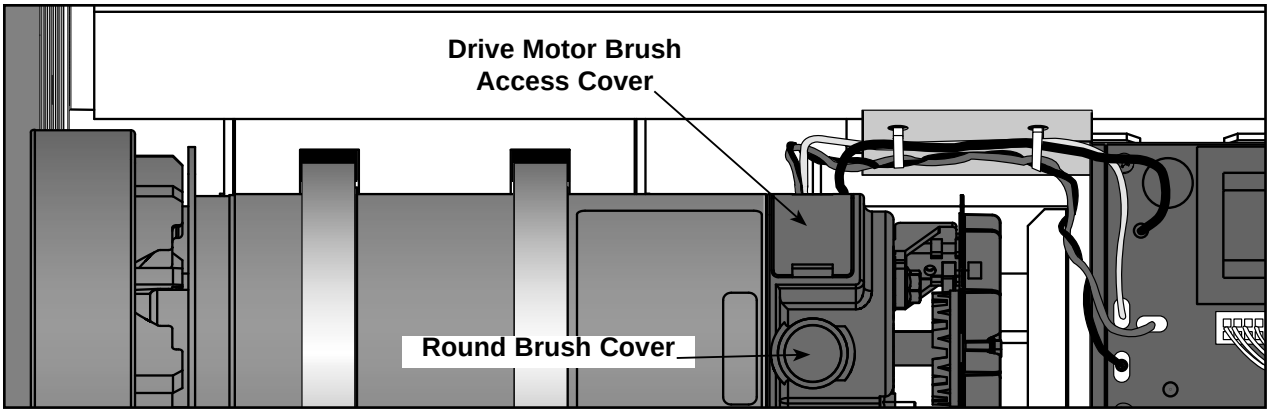


Figure 15

B. Lift off the round brush cover. See Figure 15. If necessary carefully pry the cover up using a flat head screwdriver.

11. Remove the brushes.

A. Using needle nose pliers, unplug the yellow brush wear indicator wire from the round access hole and the brush wire from the rectangular hole.

B. Press each brush spring in and slowly pull it out. It will be spring loaded. ***NOTE:*** *Before you pull out the brushes, take note which way the brushes are orientated. You will need to replace them in the same orientation.*

C. Pull each brush out from the drive motor.

12. Examine the brushes and commutator.

A. Inspect the commutator by looking through the top brush holder into the motor. Slowly spin the motor by turning the flywheel. Look for noticeable damage and for signs of wear such as arcing, pitting, burning, or uneven wear. Commutator bars that are 'dirty penny' brownish copper are in great condition. However, some commutator bars may be pitted or blackened on one edge. Too many of these indicate a worn commutator, and the motor should be replaced. The commutator may be cleaned with narrow commutator stone if carbon build-up is present. ***NOTE:*** *File down the stone if it won't fit in the brush holder hole. Brush dust can be loosened from the brush holder area by lightly filing the surfaces.*

B. Inspect the brushes for signs of excessive wear or cracks. The motor brushes must be replaced if one or both is worn to 0.4" (10.2 mm) or less in length, is broken or chipped, has a broken spring or binds in the motor.

13. Replace the brushes.

NOTE: *If a new brush does not slide in and out easily, the edges or corners of the brush can be lightly filed down. The motor may make a clicking noise as new brushes wear in. If you reinstall the original brushes it is good to install them facing their original position. Reversing the orientation of the brush can cause a clicking noise during operation until the brushes wear in.*

A. Locate the brush with the two wires and slide it into the motor brush holder (located nearest the round access hole).

B. Locate the brush with the one wire and slide it into the motor brush holder on the opposite side.

C. Place a spring clip under each brush and push in and down. The spring hooks will grasp on to the end of the brush holder.

D. Using needle nose pliers, plug the yellow brush wear indicator wire onto the fast-on inside the round access hole.

E. Using needle nose pliers, plug each brush wire onto the fast-on inside the rectangular access hole.

14. Secure the drive motor access panels.

A. Squeeze each rectangular brush covers, insert it into the holes and then release.

B. Push the round brush cover into its hole until it is flush with the motor.

15. Align the drive motor.

A. Carefully lower the drive motor in position on the motor saddle.

B. Turn the motor so the exit cable is positioned at a 3 o'clock angle toward the front roller. See Figure 16.

C. Using a straight-edge (such as the lower board shield), line up the face of the flywheel pulley with the face of the front roller pulley until they are flush. See Figure 11. ***NOTE:*** *Do not put the drive belt on until step 17A.*

16. Secure the motor straps.

NOTE: *Tighten motor strap to 80 in-lbs.*

A. Loop each strap through the motor saddle and position each screw vertically as shown in Figure 16. ***NOTE:*** *The motor strap will be creased slightly where it pressed against the motor saddle, be sure the strap is in its original position.*

B. Close each motor strap and use a 7/16" wrench with a deep socket to tighten each nut securely (80 in-lbs). See Figure 16.

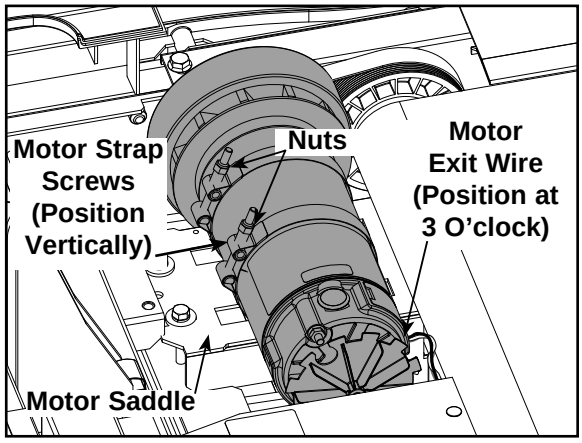


Figure 16

17. Align the drive belt.

A. Confirm that the drive belt fills all grooves in the drive motor flywheel pulley and there are open grooves on the inside of the front roller. See Figure 11. ***NOTE:*** *Failure to align the drive belt could cause squeaking.*

18. Connect the motor cables.

A. Connect the motor cable to the lower board as shown in Figure 14 (red to A1, black to A2, yellow to BW).

B. Using a 1/2" socket wrench, tighten both screws on the motor saddle.

C. Using wire ties, tie the motor cable to the base so that no wires get pinched. See Figure 17. ***NOTE:*** *Be sure that the wires are tied away from the fan and running belt. For internationally installed treadmills only, place the ferrite (shown in Figure 17) in between the wire ties.*

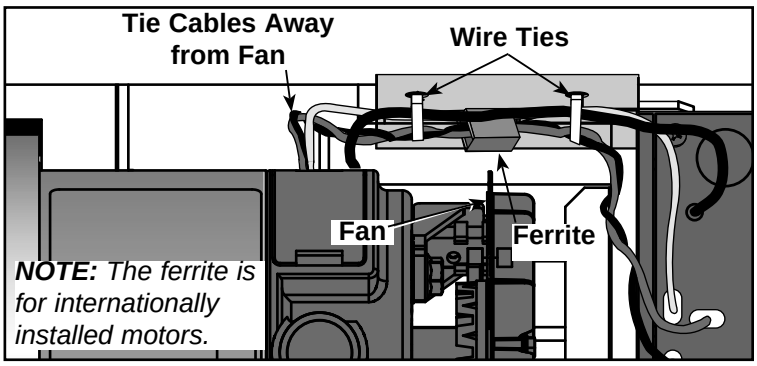


Figure 17

D. Refer to the lower board shield to confirm the locations for the connectors and check to see that all of the cables are connected firmly. See Figure 18.

E. Place the lower board shield in position and push the clips down. ***NOTE:*** *The clips will snap in.* See Figure 18.

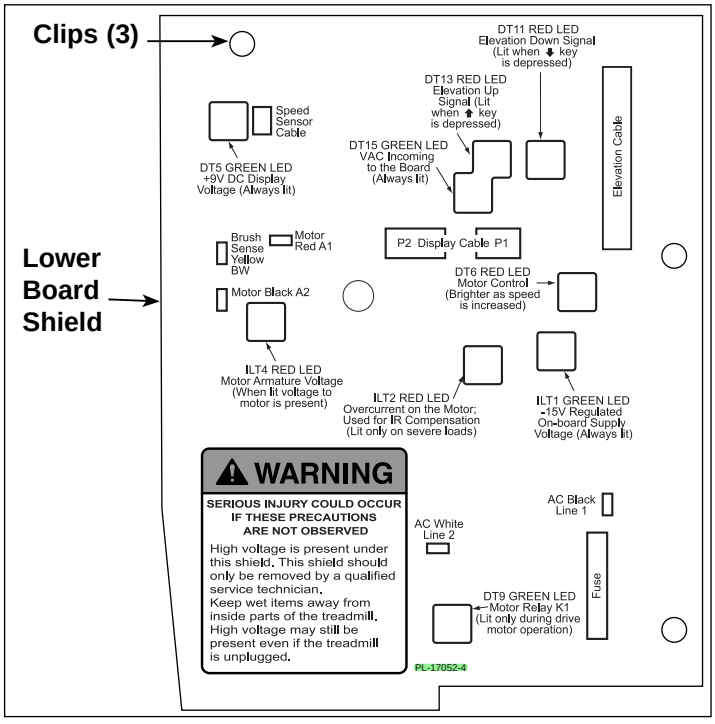


Figure 18

19. Secure the motor cover.

A. Lower the motor cover center into position. See Figure 2.

B. Using a Phillips screwdriver, tighten the three screws on each side. ***NOTE:*** *Be sure the screws are catching the center motor cover's holes.*

20. Perform the appropriate procedures.

A. If you loosened the tension on the running belt (step 6A) follow the *Tension and Center the Belt* procedure located in the *Preventive Maintenance* chapter.

B. If you replaced the motor follow the *IR Compensation* procedure located in this chapter.

C. Follow the *Speed Calibration* procedure located in this chapter (required).

Elevation Motor

Tools Required

- Phillips screwdriver
- Wooden block 4” (10 cm) tall (2)
- 9/16” Open end wrench
- 9/16” Socket wrench

! WARNING: Disconnect the power cord before beginning this procedure. Keep wet items away from inside parts of the treadmill. Electrical shock could occur even if the treadmill is unplugged.

1. Disconnect the external power source.

A. Turn the main power switch on the left side to the off (O) position.

B. Unplug the treadmill from the power outlet.

2. Remove the motor cover.

A. Using a Phillips screwdriver, loosen three screws on each motor cover side (left and right). See Figure 2.

B. Lift the motor cover center up and off the treadmill. The screws will stay in place. See Figure 2.

3. Place wooden blocks under the frame.

! CAUTION: A minimum of two people will be required to properly lift the treadmill. Always use proper lifting methods when moving heavy items.

A. While two people are lifting the front of the treadmill, have a third person place a wooden block under the each side of the frame to support the front end of the treadmill. ***NOTE:*** *This will get the weight of the treadmill off the elevation wheels and provide support.*

4. Disconnect the elevation motor cable.

! WARNING: Do not touch components on the lower board. A charge can remain after unplugging the power cord and turning off the treadmill.

A. Pull up on the lower board shield. It will snap out.

B. Disconnect the elevation motor cable from the lower board and remove it from the wire tie.

5. Remove the elevation motor.

A. Using a 9/16” open end wrench and a 9/16” socket wrench, remove the two bolts on the elevation motor (one at the top and one at the bottom). ***NOTE:*** *Hold the motor while you remove the second bolt so that it doesn’t fall.*

B. Carefully lift and remove the elevation motor from the treadmill.

6. Secure and Calibrate the elevation motor.

A. Carefully place the elevation motor in position on the treadmill. See Figure 19.

B. Slide the upper bolt into the frame and elevation motor and thread the nut onto the top bolt. See Figure 19. ***NOTE:*** *When viewing from the front of the unit the top bolt goes from the right to the left.*

C. Using a 9/16” open end wrench and a 9/16” socket wrench, securely tighten the top mounting bolt and nut.

D. Connect the elevation motor cable to the lower board. ***NOTE:*** *The board is labeled P3 at the elevation port. The connector can only fit in one direction.*

E. Connect the main power cord into the power outlet and turn the power switch on (I). ***NOTE:*** *Wait for the elevation tube to turn and find the zero switch.*

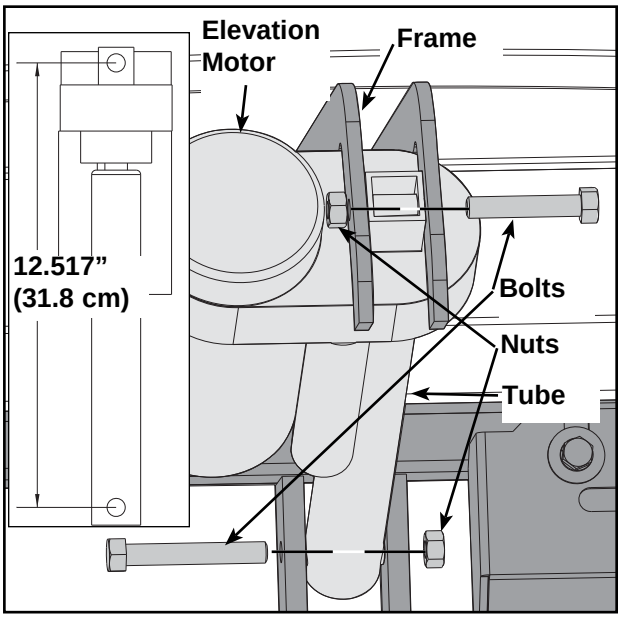


Figure 19

F. Once the motor stops, turn the tube with your fingers until it measures 12.517” (31.8 cm) from the center of the top hole to the center of the bottom hole. See Figure 19.

G. Slide the bottom mounting bolt into the frame and elevation tube. See Figure 19. ***NOTE:*** *When viewing from the front of the unit the bottom bolt goes from the left to the right.*

H. Using a 9/16” open end wrench and a 9/16” socket wrench, securely tighten the lower mounting nut and bolt.

I. Place the lower board shield in position and push the clips down. ***NOTE:*** *The clips will snap in.*

J. Tie the elevation cable with the tie from step 4B so that it is clear of the motor fan. Be sure no wires get pinched.

7. Test the elevation motor.

A. Start the treadmill in *Manual Mode* and raise the elevation to 6%.

B. Carefully remove the wooden blocks from under the front end assembly. This will load the elevation assembly.

C. Lower the elevation to zero percent.

D. Stop the treadmill and turn the main power switch in the front panel to the off (O) position.

8. Secure the motor cover.

A. Lower the motor cover center into position. See Figure 2.

B. Using a Phillips screwdriver, tighten the three screws on each side. ***NOTE:*** *Be sure the screws are catching the center motor cover's holes.*

Lower Control Board

NOTE: *You will remove and replace the entire lower bracket in this procedure.*

Tools Required

- Phillips screwdriver
- 3/8" Nutdriver or socket wrench
- ESD (Electro Static Discharge) grounding strap

! WARNING: Disconnect the power cord before beginning this procedure. Keep wet items away from inside parts of the treadmill. Electrical shock could occur even if the treadmill is unplugged. Do not touch components on the lower board. A charge can remain after unplugging the power cord and turning off the treadmill.

1. Disconnect the external power source.

A. Turn the main power switch on the left side to the off (O) position.

B. Unplug the treadmill from the power outlet.

2. Remove the motor cover.

A. Using a Phillips screwdriver, loosen three screws on each motor cover side (left and right). See Figure 2.

B. Lift the motor cover center up and off the treadmill. The screws will stay in place. See Figure 2.

3. Disconnect the cables from the lower control board and bracket.

A. Observe the "armature LED" on the lower board (labeled ILT4).

B. After the armature LED goes off proceed to step 3C.

C. Pull up on the lower board shield. It will snap out.

D. Disconnect the cables from the lower control board. This includes: the elevation motor cable; display cable (P1 and P2); AC line 1 (black); AC line 2 (white); drive motor (black, red and yellow) and speed sensor cable.

E. Using a 3/8" nutdriver or socket wrench, remove the one nut and one washer from the ground wire on the lower control bracket.

4. **Remove the line filter.**

   A. Using a Phillips screwdriver, remove the two screws that hold the line filter to the lower control board bracket. ***NOTE:*** *You should not need to disconnect the cables that are connected to the line filter.*

5. **Remove the lower control board bracket.**

   A. Using a Phillips screwdriver, remove the four screws that hold the lower control bracket to the base.

   B. Remove the entire bracket with its lower board. ***NOTE:*** *Cybex may want this part back for evaluation. Contact Cybex Customer Service at 888-462-9239.*

6. **Replace the lower control board and bracket.**

NOTE: *Wear an ESD strap for the rest of this procedure.*

   A. Position the lower control board bracket in place on the base. ***NOTE:*** *The elevation motor connector and ground stud will be positioned toward the back left corner.*

   B. Using a Phillips screwdriver, secure the four screws that hold the bracket to the base.

7. **Connect the cables to the lower control board.**

   A. Connect the cables to the lower control board. This includes: the elevation motor cable; display cable (P1 and P2); AC line 1 (black); AC line 2 (white); drive motor (black, red and yellow) and speed sensor cable. See Figure 20.

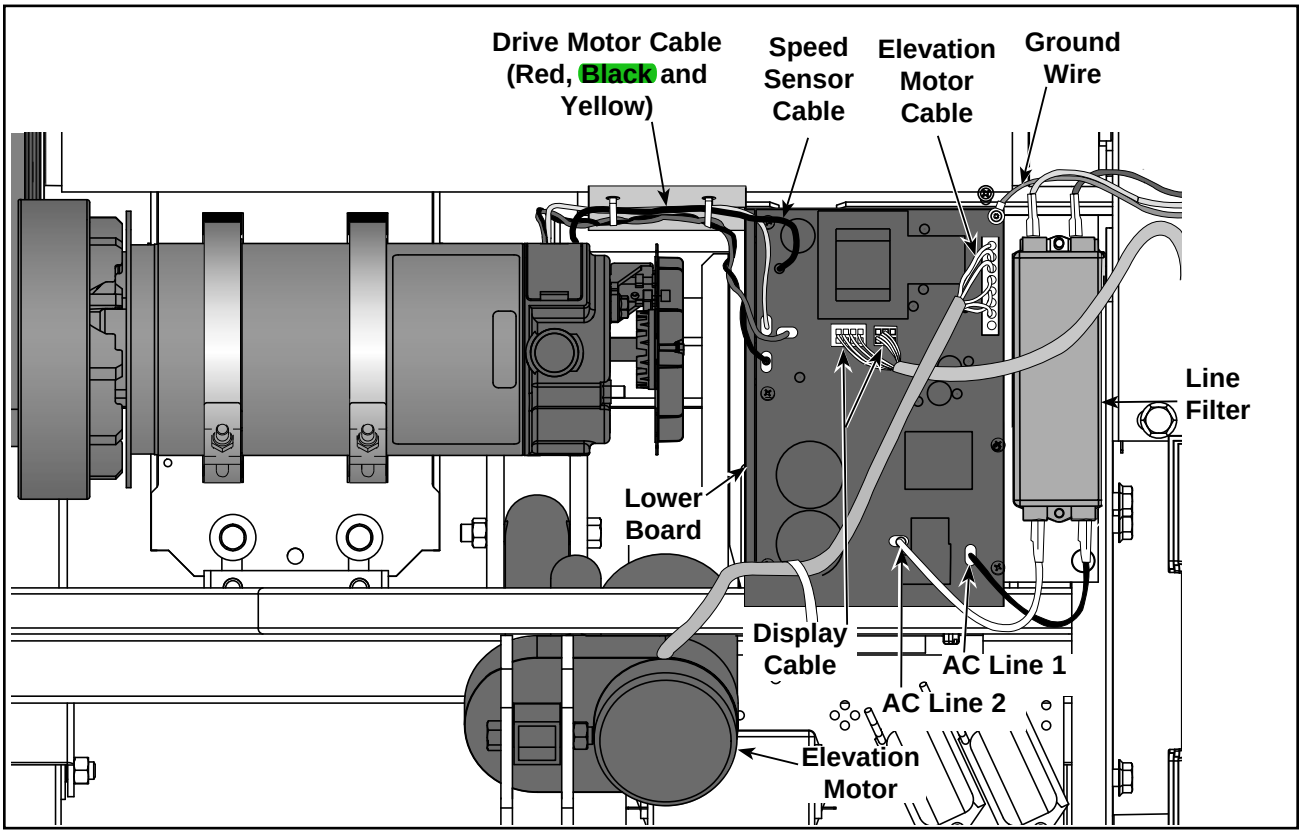


Figure 20

B. Put the ground wire terminal on the stud on the lower board bracket.

C. Using a 3/8” nutdriver, secure the one nut and one washer over the ground wire terminal.

8. Secure the line filter.

A. Using a Phillips screwdriver, secure the two screws that hold the line filter to the lower control board bracket.

9. Secure the wires.

A. Check to see that all of the cables are connected firmly in their proper place.

B. Tie the wires back with the wire ties on the base and be sure no wires get pinched.

C. Place the lower board shield in position and push the clips down. ***NOTE:*** *The clips will snap in.*

10. Perform IR Compensation procedure.

A. Follow the *IR Compensation* procedure located in this chapter.

11. Calibrate speed.

A. Follow the *Speed Calibration* procedure located in this chapter.

12. Secure the motor cover.

A. Lower the motor cover center into position. See Figure 2.

B. Using a Phillips screwdriver, tighten the three screws on each side. Be sure the screws are catching the center motor cover’s holes. See Figure 2.

Power Cord

NOTE: *This procedure will cover the power cable, line filter and power switch.*

Tools Required

- Phillips screwdriver
- 3/8” Nutdriver or socket wrench
- ESD (Electro Static Discharge) grounding strap

! WARNING: Disconnect the power cord before beginning this procedure. Keep wet items away from inside parts of the treadmill. Electrical shock could occur even if the treadmill is unplugged. Do not touch components on the lower board. A charge can remain after unplugging the power cord and turning off the treadmill.

1. Disconnect the external power source.

A. Turn the main power switch on the left side to the off (O) position.

B. Unplug the treadmill from the power outlet.

2. Remove the motor cover.

A. Using a Phillips screwdriver, loosen three screws on each motor cover side (left and right). See Figure 2.

B. Lift the motor cover center up and off the treadmill. The screws will stay in place. See Figure 2.

C. Remove the left plastic side cover.

3. Remove the left end cap.

A. Using a Phillips screwdriver, remove the screw that holds the left end cap in place. See Figure 4.

4. Remove the left side panel.

A. Pull the left side panel out and off the treadmill.

Power Switch

5. Remove the power switch.

A. Observe the “armature LED” on the lower board (labeled ILT4).

B. After the armature LED goes off proceed to step 3C.

C. Using a Phillips screwdriver, remove the two screws that hold the switch and its plate to the treadmill.

D. Disconnect the four fast-on connectors that go into the power switch.

E. Using a 3/8” nutdriver, remove the one nut and one washer from the ground wire on the lower control bracket.

6. Remove the power cord.

A. Remove the old power cord and discard the power cord (and power switch if applicable). See Figure 21.

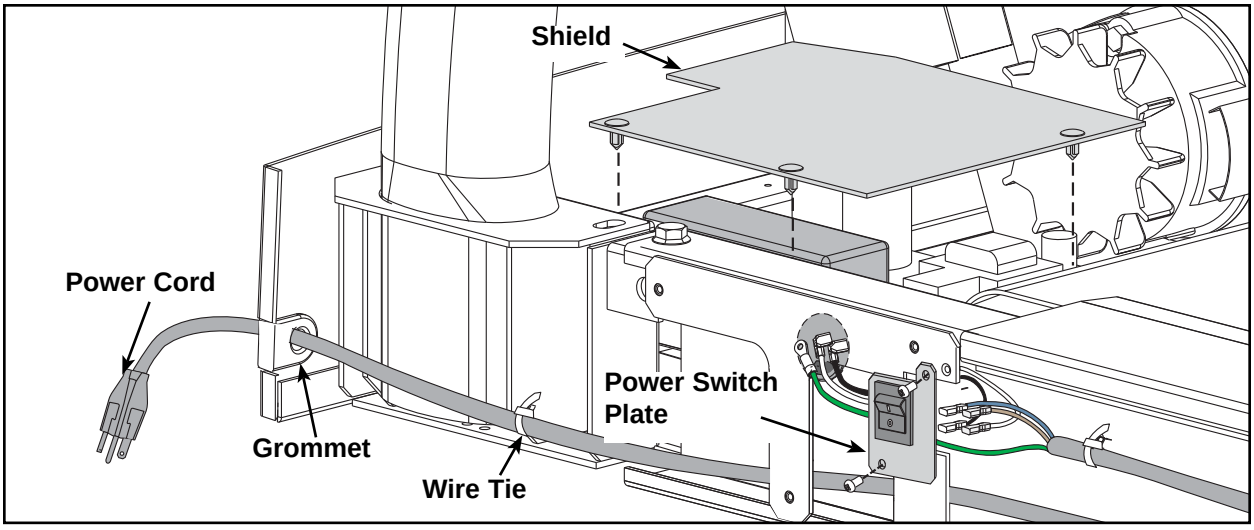


Figure 21

Line Filter

NOTE: *If you are replacing the line filter follow steps 7 and 8. If not skip to step 9.*

7. Replace the line filter (optional).

A. Disconnect the two fast-ons that go from the line filter to the lower board (cables labeled AC Line 1 and AC Line 2 on the lower board).

B. Using a Phillips screwdriver, remove the two screws that hold the line filter to the lower control bracket and discard the old line filter if applicable.

C. Place the new line filter in position on the lower control bracket.

D. Using a Phillips screwdriver, secure the two screws that hold the line filter to the lower control bracket.

8. Connect the line filter cables (if applicable).

A. Connect the white cable to the front right fast-on on the line filter and route it through the access hole.

B. Connect the black cable to the front left fast-on on the line filter and route it through the access hole.

C. Connect the ends of these two cables to the lower board. The white connects to the fast-on labeled AC Line 1. The black connects to the fast-on labeled AC Line 2.

9. Route the power cord.

A. Route the power cord behind the base brackets and route the fast-ons out the power switch access hole. ***NOTE:*** *The power cord can exit the front or back of the treadmill. Position it the way you intend to leave it.*

10. Connect the power cable.

A. Hold the power switch and its plate so that the I (on) is toward the top. See Figure 22.

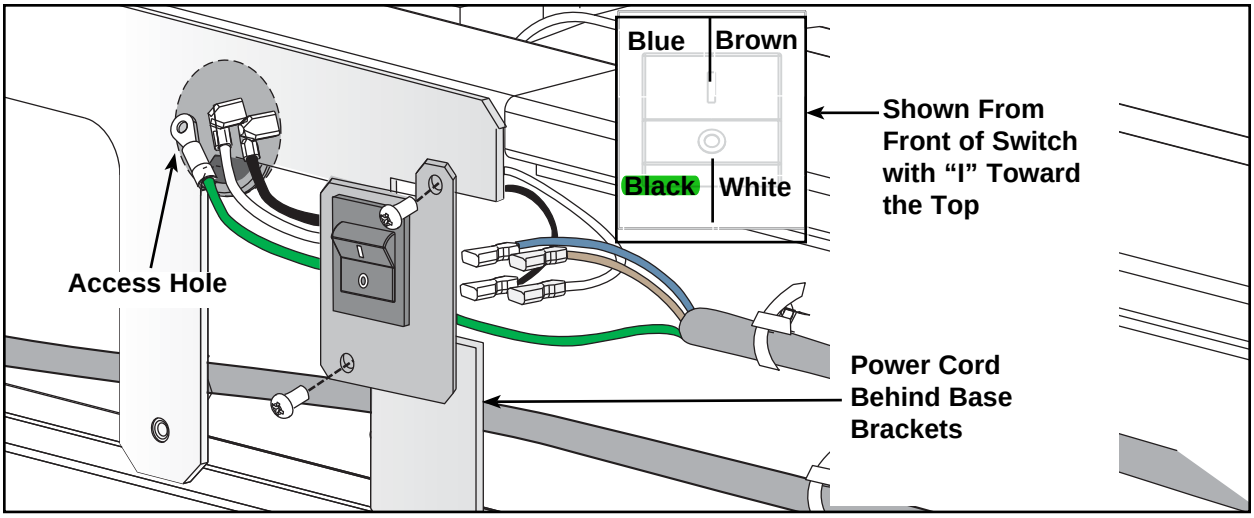


Figure 22

B. Connect these two power cord cables to the power switch:
- The blue cable connects to the top left switch fast-on.
- The brown cable connects to the top right switch fast-on

NOTE: *You will connect the ground in step 10D.*

C. Connect the line filter fast-ons to the power switch.
- The white cable connects to the bottom right switch fast-on.
- The black cable connects to the bottom left switch fast-on

D. With the ground wire through the access hole to the lower control bracket, put the ground wire terminal on the stud on the lower board bracket.

E. Using a 3/8” nutdriver, secure the one nut and one washer over the ground wire terminal.

F. Using a Phillips screwdriver, secure the switch plate to the treadmill with the I (on) toward the top.

Upper Display Board

Tools Required

- Phillips screwdriver
- ESD (Electro Static Discharge) grounding strap

1. Disconnect the external power source.

A. Turn the main power switch on the left side to the off (O) position.

B. Unplug the treadmill from the power outlet.

NOTE: *The display board is susceptible to damage from a discharge of static electricity. While handling parts underneath the console cover use an ESD grounding strap. This eliminates the potential voltage (static) difference between you and the equipment you are working on. Wear an ESD strap for the rest of this procedure.*

2. Remove the console back from the handrail.

NOTE: *If you have a cable plugged into the RJ-45 port disconnect it.*

A. Using a Phillips screwdriver, remove the nine screws that hold the console back to the console front.

B. Gently pull off the console back.

3. Remove the display board.

A. Disconnect these cables from the display board: the display cable (2 connectors), the two upper switch membranes, the lower switch membrane, the contact heart rate cable, the CSAFE board to display board jumper and the upper to lower board jumper. See Figure 23.

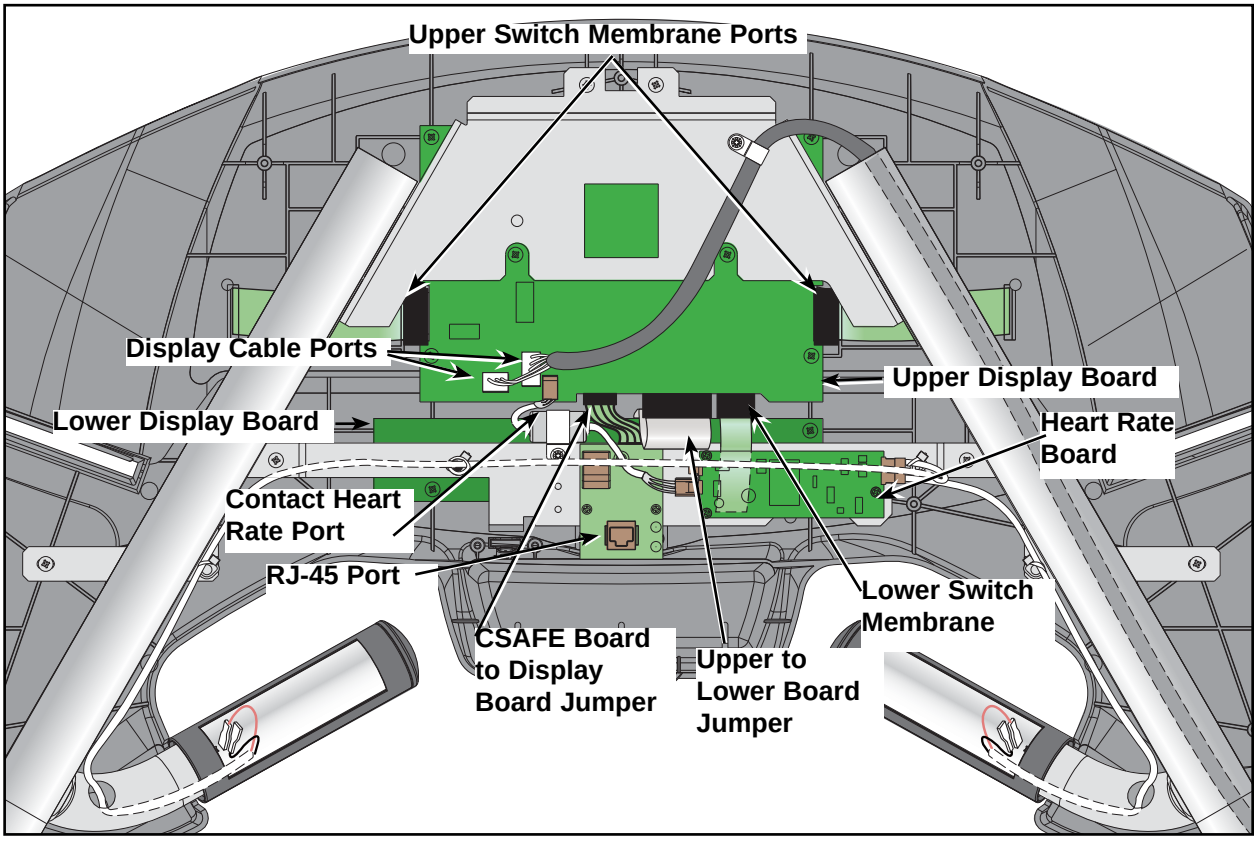


Figure 23

B. Using a Phillips screwdriver, remove the six Phillips screws that hold the display board to the console.

4. Attach the display board.

A. Place the display board in position on the front console.

B. Using a Phillips screwdriver, secure the six screws that hold the display board to the console.

5. Connect the cables.

A. Connect these cables into the display board: the display cable (2 connectors), the two upper switch membranes, the lower switch membrane, the contact heart rate cable, the CSAFE board to display board jumper and the upper to lower board jumper. See Figure 23.

6. Check the connections.

A. Check to see that all of the cables are connected firmly in their proper place.

7. **Secure the console back.**

   A. While being sure not to pinch any cables, use a Phillips screwdriver to secure the nine screws that hold the back cover to the console front.

8. **Calibrate speed.**

   A. Follow the *Speed Calibration* procedure located in this chapter.

Contact Heart Rate Board

NOTE: *This procedure will cover the contact heart rate board, grips and cable.*

Tools Required

- Phillips screwdriver
- ESD (Electro Static Discharge) grounding strap

1. **Disconnect the external power source.**

   A. Turn the main power switch on the left side to the off (O) position.

   B. Unplug the treadmill from the power outlet.

NOTE: *Wear an ESD strap for the rest of this procedure.*

2. **Remove the console back.**

NOTE: *If you have a cable plugged into the RJ-45 port disconnect it.*

   A. Using a Phillips screwdriver, remove the nine screws that hold the console back to the console front.

   B. Gently pull off the console back.

3. **Remove the heart rate board.**

   A. Using a Phillips screwdriver, remove the three screws from the heart rate board.

   B. If you're not replacing the cable, disconnect the two cables and one molex placeholder from the heart rate board. (You will re-attach the molex connector in step 4A). See Figure 24.

4. **Attach the new heart rate board.**

   A. Locate the side of the heart rate board with the two holes and place the molex placeholder over the top three pins. See Figure 24.

   B. Viewing from the front of the unit, place the heart rate board in position with the two holes to the left and, using a Phillips screwdriver, attach the heart rate board with the three screws removed in step 3A.

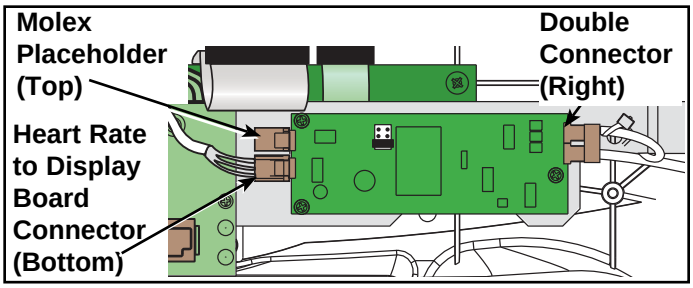


Figure 24

NOTE: *If you are replacing the grips and cable follow steps 5 to 8. If not skip to step 9.*

Contact Heart Rate Grips

Tools Required

- Phillips screwdriver
- Needle nose pliers
- Wire cutters

5. Remove the old heart rate grips and cable.

A. Using a Phillips screwdriver, remove the two screws from each lower grip. See Figure 25.

B. Using a needle nose pliers, carefully disconnect the wire from each metal contact.

C. Pull the grips and cap off each handrail.

D. Using wire cutters, cut the four wire ties that hold the heart rate cable to the handrail.

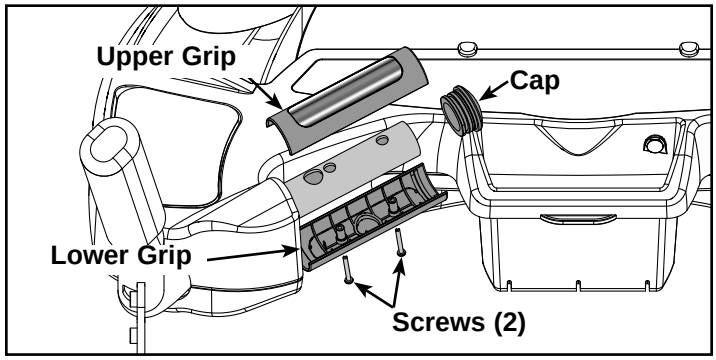


Figure 25

E. Pull the old heart rate cable out of the handrail.

6. Route the new heart rate cable.

A. Connect the double connector into the right side of the heart rate board. See Figure 24.

B. Locate the short and long side of the heart rate cable.

C. Route the short cable end to the left (from treadmill user's viewpoint) and the long end to the right.

D. Place the cable behind the handrail and tie with four wire ties in the locations they were removed in step 5D.

E. Fold the each cable and place it into the hole that leads to the grip. See Figure 26.

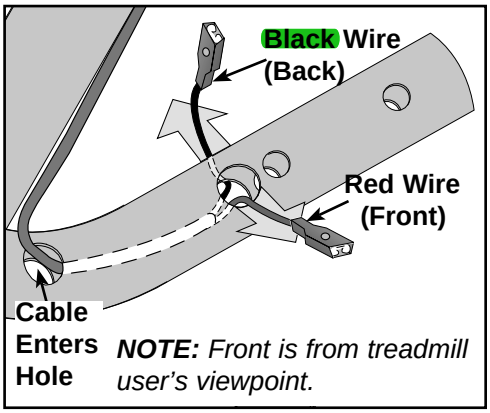


Figure 26

F. Push each wire out a hole (red out the front hole and black out the back hole). See Figure 26.

7. **Install the new heart rate grips.**

   A. Using the needle nose pliers, carefully connect the heart rate wire to each grip. ***NOTE:*** *Ensure that the red heart rate wire is connected to the top grip and the black heart rate wire is connected to the bottom grip.* See Figures 25 and 26.

   B. Place the top grips, bottom grips and cap in the correct position on the handrail. See Figure 25.

   C. Using a Phillips screwdriver, install the two screws securing the bottom grips. See Figure 25.

9. **Connect the cables removed in step 3A.**

   A. Confirm that the two cables and one molex placeholder are firmly connected to the heart rate board in their proper places. See Figure 24.

10. **Secure the console back.**

    A. While being sure not to pinch any cables, use a Phillips screwdriver to secure the nine screws that hold the console back to the console front.

11. **Connect the external power source.**

    A. Plug the treadmill into the power outlet.

12. **Calibrate speed (if you replaced the display board).**

    A. Follow the *Speed Calibration* procedure located in this chapter.

CSAFE Board

Tools Required

- Phillips screwdriver

1. **Disconnect the external power source.**

   A. Turn the main power switch on the left side to the off (O) position.

   B. Unplug the treadmill from the power outlet.

2. **Remove the console back.**

NOTE: *If you have a cable plugged into the RJ-45 port disconnect it.*

   A. Using a Phillips screwdriver, remove the nine screws that hold the console back to the console front.

   B. Gently pull off the console back.

3. **Remove the old CSAFE board.**

   A. Pull the CSAFE connector out of the display board. See Figure 23.

   B. Using a Phillips screwdriver, remove the three screws that hold the CSAFE board to the console.

4. **Attach the new CSAFE board.**

A. Gently push the CSAFE connector into its port on the display board. See Figure 23.

B. Using a Phillips screwdriver, secure the CSAFE board with the three screws removed during step 3B. ***NOTE:*** *Do not overtighten.*

5. Secure the console back.

A. While being sure not to pinch any cables, use a Phillips screwdriver to secure the nine screws that hold the console back to the console front.

Display Cable

Tools Required

- Phillips screwdriver
- ESD (Electro Static Discharge) grounding strap
- Wire cutters

! WARNING: Disconnect the power cord before beginning this procedure. Keep wet items away from inside parts of the treadmill. Electrical shock could occur even if the treadmill is unplugged. Do not touch components on the lower board. A charge can remain after unplugging the power cord and turning off the treadmill.

1. Disconnect the external power source.

A. Turn the main power switch on the left side to the off (O) position.

B. Unplug the treadmill from the power outlet.

NOTE: *The display board is susceptible to damage from a discharge of static electricity. While handling parts underneath the console cover use an ESD grounding strap. This eliminates the potential voltage (static) difference between you and the equipment you are working on. Wear an ESD strap for the rest of this procedure.*

2. Remove the console back.

A. Using a Phillips screwdriver, remove the nine screws that hold the console back to the console front.

B. Gently pull off the console back.

3. Remove the motor cover.

A. Using a Phillips screwdriver, loosen three screws on each motor cover side (left and right). See Figure 2.

B. Lift the motor cover center up and off the treadmill. The screws will stay in place. See Figure 2.

4. Remove the left junction covers.

A. Using a Phillips screwdriver, remove the three screws that hold the left junction covers in place.

5. Remove the display cable.

! WARNING: Do not touch components on the lower board. A charge can remain after unplugging the power cord and turning off the treadmill.

A. Pull up on the lower board shield until the shield snaps out.

B. Disconnect the display cable (P1 and P2) from the lower board. See Figure 27 .

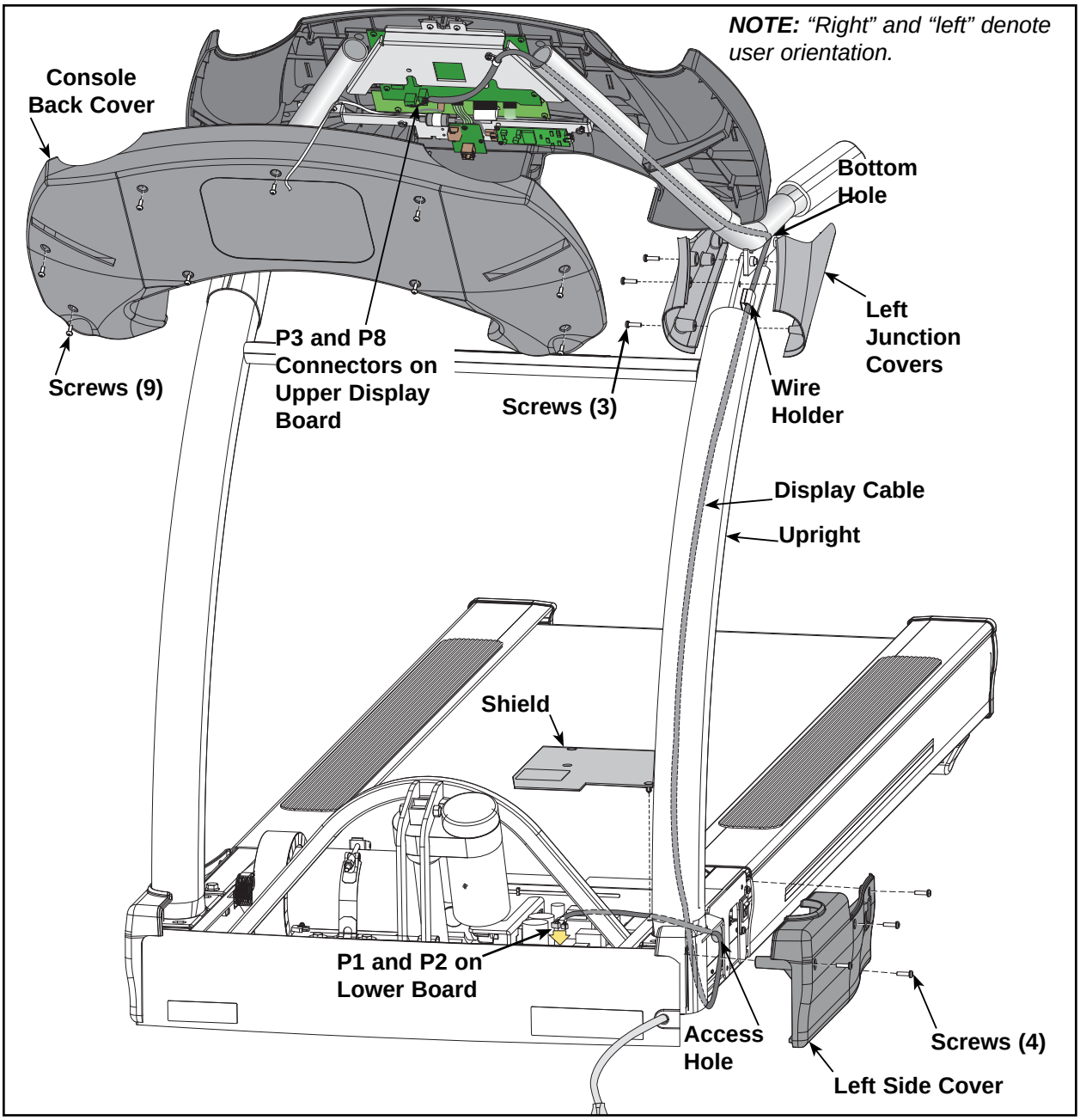


Figure 27

C. Disconnect the display cable (P3 and P8) from the upper display board. See Figure 27.

D. Using a Phillips screwdriver, loosen the wire retaining screw that holds the display cable in place near the display board.

E. Remove the cable from the wire ties at the junction and near the bottom of the upright.

F. Using wire cutters, cut the cable at its center near the junction and pull both ends out of the treadmill. ***NOTE:*** *Pull the upper end up and out and the lower end down and out.*

NOTE: *Display cables have a revision number label so that you can verify that you have the latest revision of the cable.*

6. Attach the new display cable.

A. Connect the display cable (P3 and P8) to the upper display board. See Figure 27.

B. Locate the P1 and P2 end of the display cable. See Figure 28.

C. Push the P2 connector down into the top handrail hole with the P1 connector pointing up. See Figure 28.

D. Push the display cable down through the handrail and out the handrail's bottom hole. ***NOTE:*** *Twisting the cable as you push will help it go through.*

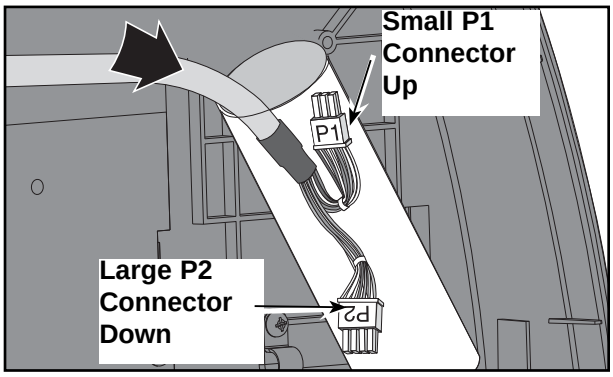


Figure 28

E. Push the display cable down through the upright and out the exit hole. ***NOTE:*** *There is a black line on the display cable to show you how far to pull out the cable. When you see the line, stop pulling the cable out.*

F. Route the cable into the access hole.

G. Connect the display cable to the lower control board at P1 and P2.

7. Secure the cable.

A. Using a Phillips screwdriver, open the clip described in step 5D and secure the cable in the clip.

B. Locate the line on the display cable described in step 6D and tie the cable with the wire tie near the bottom of the upright.

C. Open the wire holder at the junction, put the cable inside and close the wire holder.

D. Check to see that all of the connectors are connected firmly in their proper place.

E. Place the lower board shield in position and push the clips down. ***NOTE:*** *The clips will snap in.*

8. Secure the left junction covers.

A. Using a Phillips screwdriver, tighten the three screws that hold the junction covers in place.

9. Secure the motor cover.

A. Lower the motor cover center into position. See Figure 2.

B. Using a Phillips screwdriver, tighten the three screws on each side. ***NOTE:*** *Be sure the screws are catching the center motor cover's holes.*

10. Secure the console back.

A. While being sure not to pinch any cables, attach the console back to the console front with the five Phillips screws.

Display Overlays

NOTE: *This procedure will cover the upper and/or lower display overlay. They are removed and replaced the same on the Cybex Pro+ treadmill.*

Tools Required

- Phillips screwdriver
- ESD (Electro Static Discharge) grounding strap
- Razor blade

1. Disconnect the external power source.

A. Turn the main power switch on the left side to the off (O) position.

B. Unplug the treadmill from the power outlet.

2. Remove the console back.

A. Using a Phillips screwdriver, remove the nine screws that hold the console back to the console front.

B. Gently pull off the console back.

C. Loosen the six screws that hold the front console in place. ***NOTE:*** *This allows clearance for the switch membranes to fit behind the handrail.*

NOTE: *The display board is susceptible to damage from a discharge of static electricity. While handling parts underneath the console cover use an ESD grounding strap. This eliminates the potential voltage (static) difference between you and the equipment you are working on. Wear an ESD strap for the rest of this procedure.*

3. Remove the display overlay.

A. While wearing an ESD strap, disconnect the switch membranes (two upper and one lower) from the display board. See Figure 23.

B. Use a razor blade to peel up a corner of the display overlay and pull off the overlay.

4. Attach the display overlay.

A. Remove the paper backing from the new display overlay.

B. Slide the ribbon cable through the (upper two or lower one) slot.

C. Carefully place the display overlay in position within the indentation on the console front and firmly rub the display overlay so that it adheres to the console.

D. Route the ribbon cables under the frame tubes and connect them to the display board.

5. **Secure the console covers.**

   A. Using a Phillips screwdriver, tighten the six screws that hold the console front to the frame.

   B. While being sure not to pinch any cables, secure the console back to the console with the five Phillips screws.

6. **Test the new display overlay.**

   A. Turn the main power switch to the on (I) position.

   B. Plug the treadmill into the power outlet.

   C. Try each key to be sure that it functions properly.

Parts List

ITEM	QTY.	PART NO.	DESCRIPTION
1	1	SK-19500	Frame, Weldment
2	14	HS-16929	Screw, 3/8 - 16 x 5/8", Lg H x HD Whiz-lock, GR5
3	6	HS-16950	Screw, 5/16 - 18 x 7/8", Lg H x Soc BTNHD w/patch, B-Zn
4	6	HS-19454	Screw, SEMS, 10-32 X 1.0", PNHD, BLK ZN, EXT
5	1	AX-16724-X	Motor Cover assembly*
6	1	PL-16465	Cover, Upright Outer, Right
7	1	PL-16464	Cover, Upright Outer, Left
8	2	HW-19634	Washer, Flat, .344 ID X 1.0 OD X .125", Thick, Zinc
9	8	HS-16939	Screw, SEM 10-32 x .75", Pnhd Ext blk Zn
12	2	HS-21379	Screw, 1/4 - 20 X .50", FLHD PHIL, Undercut, ZN
13	1	AX-17765	Side Extrusion Assy, Cybex Pro+, Right
14	1	AX-17767	Side Extrusion Assy, Cybex Pro+, Left
15	1	AF-17677	Upright Weldment (Choose a Standard or Custom Color)
16	2	AX-17829	Top Platform Assy, (Choose a Standard or Custom Color)
17	2	DE-16705	Decal, Safety-walk
18	5	HS-16875	Screw, SEM ext 1/4 - 20 x 1/2", PNHD Phil
19	8	EH-10291	Anchor, Cable Tie
20	11	EH-00986	Cable Tie, (without anchor)
21	1	PL-16737	Grommet, Power Cord
22	1	PL-16738	Plug, Power Cord
23	1	DE-16992	Decal, ETL UL-1647 Only
24	1	DE-14486	Decal, Serial Number
25	1	SCK-16496	End Cap, Left, (Choose a Standard or Custom Color)
26	1	SCK-16497	End Cap, Right, (Choose a Standard or Custom Color)
27	2	HX-19991	Bumper, Deck, 2.10 X 2.34 X 1.55"
28	1	EH-16809	Grommet, 1.12 X .091 - .125", Nylon
29	2	AF-17591	Nut Holder Bracket
30	1	DE-20427	Label, Disconnect Power, Multi-languages
31	2	HW-00590	Bushing Nylon 1/2" Nf810-5-0
32	6	HX-13771	Ring, Retain 5/8" .579 Fr.Id
33	2	HX-16510	Foot, Rubber, Rear
34	4	FS-16511	Plate, Rear Rubber Foot Mount
35	8	HS-16509	Screw, #10 x .5LG, T-SPLT, PNHD, TYB-B
36	2	HS-15480	Bolt, Tap 1/2-13unc x 6 H x HD GR5
37	2	HB-16367	Bushing, .50ID x .62OD x .31LG, flanged
38	4	HW-10028	Washer, B 1-2 Narrow Zinc
39	2	HX-11049	Spring 1" O.D.360 Max Ld.
40	1	AX-16723	Rear Roller Hardware Assembly
41	1	AF-16382	Elevation, Weldment
42	2	HS-60022	Bolt, Hhcs 0.375 x 2.25 blk zn G5
43	2	CW-16712	Wheel, Rubber, 3" Dia
44	2	HN-17935	Nut, Lock, 3/8 - 24, GRD C, STL, ZN
45	1	DE-17144-X	Decal, International only*
46	1	HS-17936	Bolt, 3/8 - 24 X 2.0", HXHD CAP, G8, YEL ZN
47	1	HS-17937	Bolt, 3/8 - 24 X 2.75", HXHD CAP, G8, YEL ZN

ITEM	QTY.	PART NO.	DESCRIPTION
48	1	MR-16412	Motor, Elevation, 115 VAC
48	1	MR-16541	Motor, Elevation, 230 VAC
49	1	SK-17079	Tube Nut, Motor, Elevation Kit
50	1	FT-16825	Sleeve, Elevation Mounting, Top
51	1	FT-16826	Sleeve, Elevation Mounting, Bottom
53	6	HS-15732	Screw, SEM 8-32 unc x .62", PNHD phil pl
54	1	HW-10856	Washer, (for ground)
55	1	HN-11925	Nut, Keps 10-32 Hex Stl Zinc
56	1	PL-17052-X	Cover, Lower Controller*
57	3	HX-16943	Clip, Christmas Tree, Single Head
58	1	AX-16835	Lower Controller Assembly, 115 VAC
58	1	AX-16836	Lower Controller Assembly, 220 VAC
59	1	DE-16608-X	Label, Brush Replacement Gauge*
60	1	DE-16610-X	Label, Error Codes*
61	1	DE-16609-X	Label, Service Schedule*
62	1	DE-19531	Decal, IS3
63	1	DE-17691-X	Label, User Precautions, 15 x 1.3"*
64	1	DE-17693-X	Label, Start Instructions, Profiles*
65	1	DE-18135-X	Label, HR Zone, Heart Icons*
65	1	SW-18194-4	Membrane, A/V, All languages
67	2	HX-14416	Clip, Cable Retainer
68	1	HW-40004	Washer, Wave
69	1	AX-18883	Motor Base Plate Assy
70	2	HS-16849	Screw, 5/16 - 18 x 2.0", LG HXHD, GR5, Tap
71	2	HW-00165	Washer, Lock Ex 5-16 Zinc
73	2	HB-16426	Bushing, Flanged,1.0ID x 1.12OD x .75LG
74	6	HX-16425	Ring, Retaining Ext Crescent
75	1	FT-16352	Shaft, Motor Mount
76	1	EC-19647	Speed Sensor
80	2	AF-19605	Clamp, Motor Drive (includes nut)
81	1	AX-19636	Drive Motor, 3.0HP, 110 VDC, McMillan
81	1	AX-19637	Drive Motor, 3.0HP, 220 VDC, McMillan
88	1	SCK-16379	Cover, Junction Outer, Right, (Choose a Standard or Custom
89	1	SCK-16380	Cover, Junction Inner, Right, (Choose a Standard or Custom Color)
90	1	SCK-16328	Cover, Junction Inner, Left, (Choose a Standard or Custom Color)
91	1	SCK-16327	Cover, Junction Outer, Left, (Choose a Standard or Custom Color)
92	1	DK-16932	Deck, Plywood 23.3 x 51.5 x 1.0", (Double Sided)
93	1	BD-17026	Belt, Running, 20.63 x 60", Commercial
94	10	HW-00431	Washer, 1/4 x .75 x .062", Zinc
95	10	HS-16628	Screw, .25-20 x 1.5", Hxhd Grade 8
96	1	AL-19035	Roller, Front Assy
97	1	AL-19036	Roller, Rear Assy
98	1	BD-16829	Drive, Belt, 8 Rib
99	1	PL-17659	Console, Back, Plastic
100	1	DE-17712	Decal, Logo, Cybex Intl, 9 x 7"
101	1	PL-17658	Front Console, Plastic
102	1	SW-18304-X	Membrane, Pro+, Top*
103	1	SW-18305-X	Membrane, Pro+, Bottom*
104	1	AX-20943	Lanyard, E-stop Assembly

ITEM	QTY.	PART NO.	DESCRIPTION
105	2	PL-17686	Tab, Bookholder
106	1	HX-16931	Clamp, Cable, 5-16 dia Standard
107	1	AD-16559	PCA, Pro+, Lower Display, English
107	1	AD-16559-Q	PCA, Pro+, Lower Display, International
108	1	SK-17171	PCA, Pro+, Upper Display, English
108	1	AD-18199-Q	PCA, Pro+, Upper Display, International
110	1	AD-19366	PCA, CSAFE Port Board, W-TVS
111	1	EC-17763	PCA Salutron Serial Output
112	1	AW-17707	Cable, CHR to display with ferrite
113	1	AF-17684	Handrail, Weldment
116	2	HX-15499	Grip Handlebar
118	6	HS-10716	Screw 4-40 x 0.38 PNHD Phil
119	4	EH-00472	Wire Tie Ty-23M
120	1	FS-16841	Mount, E-stop Magnet
121	2	HS-16940	Screw, Sems 10-32 x 3/8", PNHD ext, BL ZN
122	1	FS-16990	Plate, Switch, Power On-Off
123	1	SW-10523	Switch, On-Off
124	12	HS-41187	Screw, 8/16 x 5/16", Plastite
125	17	HS-15706	Screw, 8/16 x .50", PNHD STL BLK Phil
126	1	HX-17711	Plug, Hole Plastic 7-16 Black
127	1	HX-19040	Clamp, Cable, 3/4" Diameter
128	1	HX-17697	Tape, Double Sided, Die Cut, .062", Thick
129	1	HX-16842	Magnet, E-stop
130	2	AX-19669	Grip, Heartrate Grip, Top
131	2	AX-19670	Grip, Heartrate Grip, Bottom
132	2	PL-20360	Endcap, Heartrate Grip
133	4	HS-20306	Screw, 6 - 20 X 1.12", PNHD PHIL
134	1	AX-16812	Power Factor Correction Assembly
135	1	AX-21397	Assembly, Deck Stiffener, Pivot, Left
136	1	AX-21396	Assembly, Deck Stiffener, Pivot, Right
137	2	HS-19108	Screw, 5/16 - 18 X 34", LG, HXHD, Whiz-lock, GR5
138	1	FM-19439	Shaft, Deck Pivot
139	2	HN-20041	Nut, 1/4 - 20, Propeller, .305" OD
140	2	HW-20044	Washer, Belleville, 15 X 8.2 X 1.0 MM, .5MM Thick
141	2	HS-18358	Bolt, 5/16 - 18 X .1.25", SCHD CAP, BLK ZN
142	1	DE-19451	Decal, WEEE Symbol
143	2	DE-17714	Decal, Cybex, 13.8 X 2.2"
144	1	DE-16784	Decal, Side Stripe
145	2	DE-17713	Cybex Pro+ Decal for Side Extrusions
146	2	HN-60064	Nut, Jam 3-8"-16 blk zn
147	1	EC-15004	Ferrite, Clamp-on, .40" ID
200	1	AF-20678	Bracket, SLANT Mount,TV Arm
201	1	CP-20665	Monitor, CYBEX, 15" SECAM/PAL
201	1	CP-20794	Monitor, CYBEX, 15" ASTC
202	1	HX-20032	Cap, Domed, Plastic
203	2	PL-20015	Cap, Black
204	3	FT-19980	Tube, Spacer, .375 Dia , .28" Wall
205	1	HS-20036	Screw, 5/16-18 x 1.50", ScHd, Stl, Zn
206	2	HS-41107	Bolt, 5/16-18 x 1.50", Bh, SS, Bl
207	2	HX-20782	Bushing, T- Type,Rubber, Ring Mount, Vibration Isolator
208	8	HW-20779	Washer, Flat, 1.44 x .325", SS
209	6	HX-20778	Bushing,Rubber, Ring Mount, Vibration Isolator
210	1	HW-53018	Washer, 5/16", Split
211	4	HS-20731	Screw, M4x10 ScHd Stl, Blk
212	4	HW-21285	Washer, Lock, M4 Zn
213	4	HW-20214	Washer, Flat, M4
NS	1	AW-16561	Cable, Univ. Tread Display
NS	1	AW-16572	Jumper, Switch-Filter, White, US
NS	1	AW-16578	Jumper, Filter-cntl, White
NS	1	AW-16579	Jumper, Filter-cntl, Black
NS	1	AW-16638	Power Cord, 230 VAC, 50Hz
NS	1	AW-16639	Power Cord, 220 VAC, 60Hz
NS	1	AW-16640	Power Cord, 115 VAC, 60HZ
NS	1	AW-16938	Jumper, Switch-Filter, Black, US
NS	1	AW-17163	Jumper, Switch-Filter, Black, Intl.
NS	1	AW-17164	Jumper, Switch-Filter, White. Intl.
NS	1	AW-17694	Cable, Audio, 1/4" to 3.5mm, 18"
NS	1	AW-17694	Cable & Audio Jack 1/4 in to 3.5 mm
NS	1	AW-17706	Cable, Contact HR Grip
NS	1	AW-17732	Cable, 4" Ribbon C-SAFE
NS	1	AW-19117	Cable, 515T / 530T, A/V, I/O
NS	1	AW-19502	Cable, AV Keypad Extension
NS	1	AW-19502	Cable, Ribbon, AV Keypad Extension
NS UK	1	AW-19523	Power Cord, 230 VAC, 50Hz, 13A,
NS	1	AW-19648	Cable, Speed Sensor
NS	1	AW-20111	Cable E5, RJ45
NS	1	AX-16273	Clamp Assy, Handrail Ext.
NS	1	AX-16956	Kit, Install Hardware
NS	0	AX-17174	Handrail Extension Kit, Left Only - Complete kit with instructions
NS	0	AX-17175	Handrail Extension Kit, Right Only Complete kit with instructions
NS	0	AX-17217	Handrail Extension Kit, Left and Right - Complete kit with instructions
NS	1	CN-17687	Adapter, 1/4" Plug to 1/8" Jack
NS	1	FT-16278	Handrail Extension, Spacer, Bottom hardware
NS	1	HS-16921	Handrail Extension, Bolt, 5/8-11 x 4.75, Bottom hardware
NS	2	HS-16935	Handrail Extension, Screw, Set 1/2 13 x 1/2", Top Hardware
NS	1	HX-00438	Allen Wrench, 3/16"
NS	2	HX-16852	Handrail Extension, Grip
NS	1	LT-03051	Sign, Facility Safety
NS	1	LT-17718	Poster, Assembly
NS	1	LT-21250	Product Registration Sheet
NS	1	LT-17730-X	Owner's Manual, Cybex Pro+*
NS	1	LT-17446	Warranty Sheet, Cybex Pro+, Pink
NS	1	SK-17827	Kit, Assembly, Contact Heart Rate Grip, Pair
NS	1	SK-18554	Brush Kit, Pair, 110 or 220 VDC, w/ spring clips

NOTE: *NS = Not Shown*

*Language Key
1-German
2-French
3-Spanish
4-English
6-Japanese
7-Swedish
8-Russian

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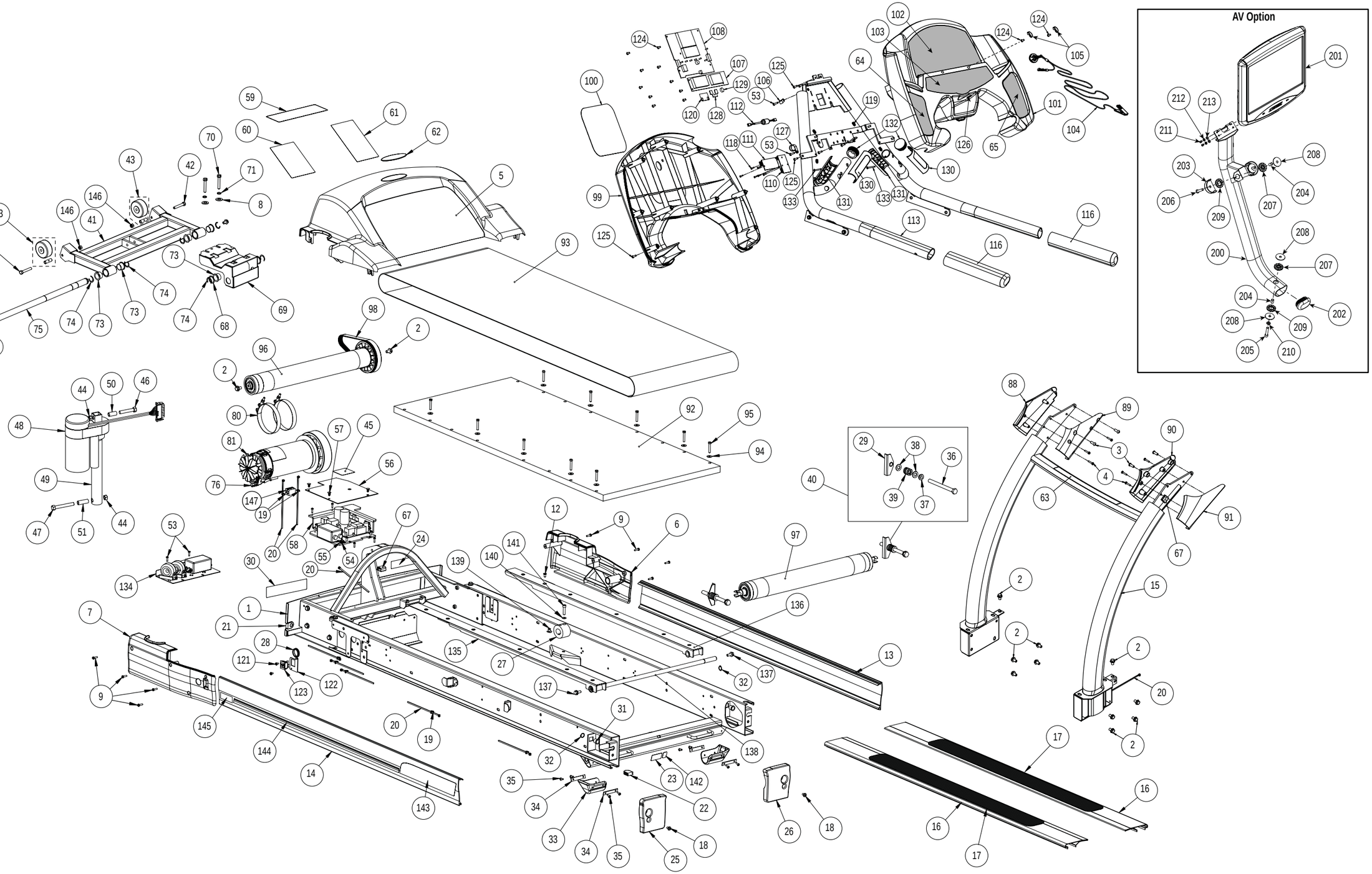
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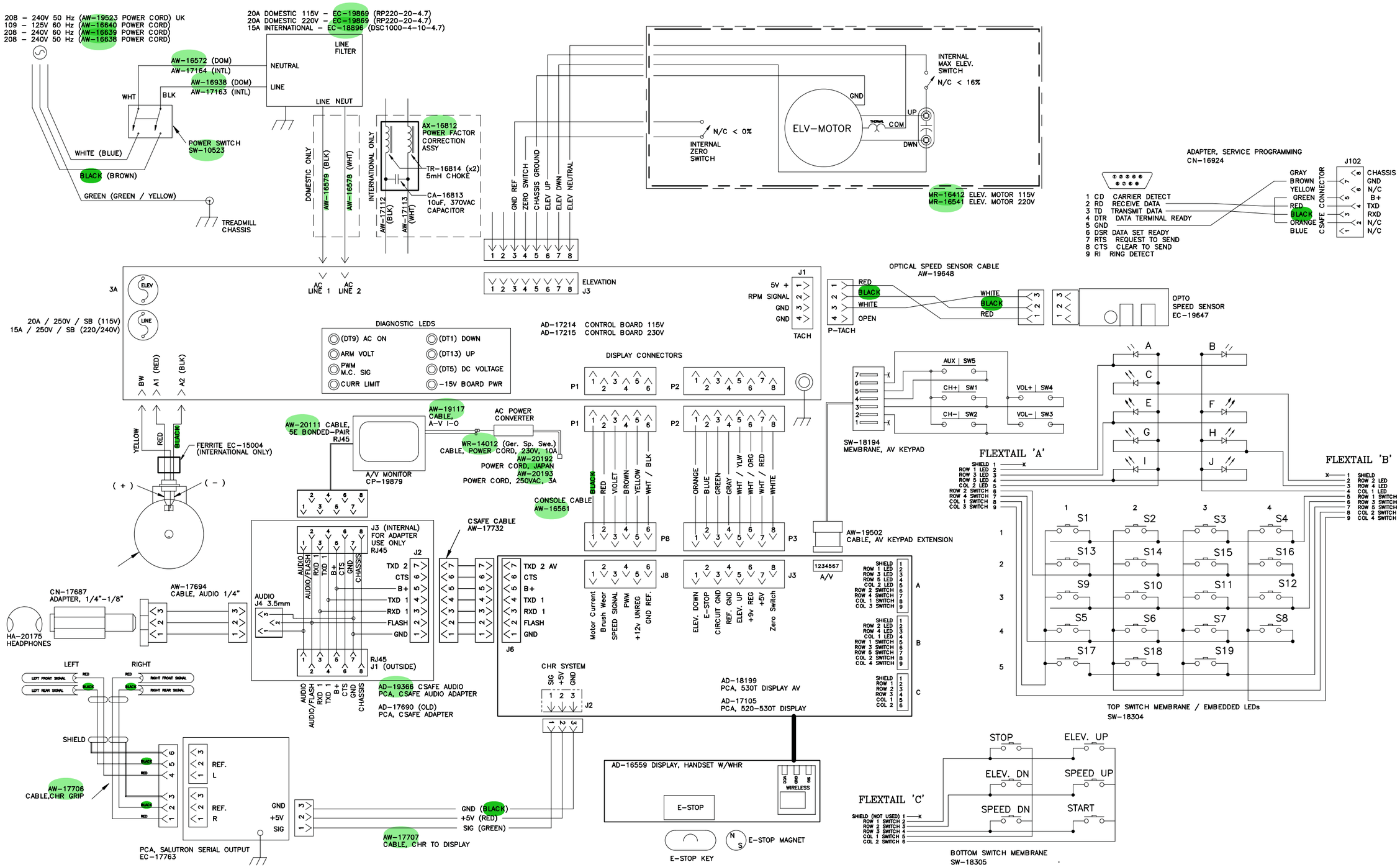
208 – 240V 50 Hz (AW–19523 POWER CORD) UK
109 – 125V 60 Hz (AW–16640 POWER CORD)
208 – 240V 60 Hz (AW–16639 POWER CORD)
208 – 240V 50 Hz (AW–16638 POWER CORD)
20A DOMESTIC 115V – EC–19869 (RP220–20–4.7)
20A DOMESTIC 220V – EC–19869 (RP220–20–4.7)
15A INTERNATIONAL – EC–18896 (DSC1000–4–10–4.7)
AW–16572 (DOM)
AW–17164 (INTL)
AW–16938 (DOM)
AW–17163 (INTL)
LINE FILTER
NEUTRAL
LINE
LINE NEUT
WHT
BLK
POWER SWITCH SW–10523
WHITE (BLUE)
BLACK (BROWN)
GREEN (GREEN / YELLOW)
TREADMILL CHASSIS
DOMESTIC ONLY
AW–16579 (BLK)
AW–16578 (WHT)
INTERNATIONAL ONLY
AW–17112 (BLK)
AW–17113 (WHT)
AX–16812 POWER FACTOR CORRECTION ASSY
TR–16814 (x2) 5mH CHOKE
CA–16813 10uF, 370VAC CAPACITOR
GND REF
ZERO SWITCH
CHASSIS GROUND
ELEV UP
ELEV DWN
ELEV NEUTRAL
1 2 3 4 5 6 7 8
INTERNAL MAX ELEV. SWITCH
N/C < 16%
GND
UP
THERMAL
COM
DWN
ELV–MOTOR
N/C < 0%
INTERNAL ZERO SWITCH
MR–16412 ELEV. MOTOR 115V
MR–16541 ELEV. MOTOR 220V
ADAPTER, SERVICE PROGRAMMING CN–16924
J102
GRAY
BROWN
YELLOW
GREEN
RED
BLACK
ORANGE
BLUE
CSAFE CONNECTOR
CHASSIS
GND
N/C
B+
TXD
RXD
N/C
N/C
1 CD CARRIER DETECT
2 RD RECEIVE DATA
3 TD TRANSMIT DATA
4 DTR DATA TERMINAL READY
5 GND
6 DSR DATA SET READY
7 RTS REQUEST TO SEND
8 CTS CLEAR TO SEND
9 RI RING DETECT
3A
ELEV
LINE
20A / 250V / SB (115V)
15A / 250V / SB (220/240V)
AC LINE 1
AC LINE 2
1 2 3 4 5 6 7 8 ELEVATION J3
J1
5V +
RPM SIGNAL
GND
GND
TACH
OPTICAL SPEED SENSOR CABLE AW–19648
RED
BLACK
WHITE
OPEN
P–TACH
WHITE
BLACK
RED
OPTO SPEED SENSOR EC–19647
DIAGNOSTIC LEDS
(DT9) AC ON
ARM VOLT
PWM M.C. SIG
CURR LIMIT
(DT1) DOWN
(DT13) UP
(DT5) DC VOLTAGE
–15V BOARD PWR
AD–17214 CONTROL BOARD 115V
AD–17215 CONTROL BOARD 230V
DISPLAY CONNECTORS
P1
P2
BW
A1 (RED)
A2 (BLK)
YELLOW
RED
BLACK
FERRITE EC–15004 (INTERNATIONAL ONLY)
(+)
(–)
AW–20111 CABLE, 5E BONDED–PAIR RJ45
A/V MONITOR CP–19879
AW–19117 CABLE, A–V I–O
AC POWER CONVERTER
WR–14012 (Ger. Sp. Swe.) CABLE, POWER CORD, 230V, 10A
AW–20192 POWER CORD, JAPAN
AW–20193 POWER CORD, 250VAC, 3A
CONSOLE CABLE AW–16561
BLACK
RED
VIOLET
BROWN
YELLOW
WHT / BLK
ORANGE
BLUE
GREEN
GRAY
WHT / YLW
WHT / ORG
WHT / RED
WHITE
P8
P3
AW–19502 CABLE, AV KEYPAD EXTENSION
SW–18194 MEMBRANE, AV KEYPAD
AUX | SW5
CH+ | SW1
CH– | SW2
VOL+ | SW4
VOL– | SW3
FLEXTAIL 'A'
SHIELD 1
ROW 1 LED 2
ROW 3 LED 3
ROW 5 LED 4
COL 2 LED 5
ROW 2 SWITCH 6
ROW 4 SWITCH 7
COL 1 SWITCH 8
COL 3 SWITCH 9
FLEXTAIL 'B'
1 SHIELD
2 ROW 2 LED
3 ROW 4 LED
4 COL 1 LED
5 ROW 1 SWITCH
6 ROW 3 SWITCH
7 ROW 5 SWITCH
8 COL 2 SWITCH
9 COL 4 SWITCH
A
B
C
D
E
F
G
H
I
J
S1
S2
S3
S4
S13
S14
S15
S16
S9
S10
S11
S12
S5
S6
S7
S8
S17
S18
S19
TOP SWITCH MEMBRANE / EMBEDDED LEDs
SW–18304
CN–17687 ADAPTER, 1/4"–1/8"
AW–17694 CABLE, AUDIO 1/4"
HA–20175 HEADPHONES
AUDIO J4 3.5mm
J3 (INTERNAL) FOR ADAPTER USE ONLY RJ45
J2
AUDIO
AUDIO/FLASH
RXD 1
TXD 1
B+
CTS
GND
CHASSIS
TXD 2
CTS
B+
TXD 1
RXD 1
FLASH
GND
RJ45 J1 (OUTSIDE)
CSAFE CABLE AW–17732
AD–19366 CSAFE AUDIO PCA, CSAFE AUDIO ADAPTER
AD–17690 (OLD) PCA, CSAFE ADAPTER
J6
TXD 2 AV
CTS
B+
TXD 1
RXD 1
FLASH
GND
J8
J3
Motor Current
Brush Wear
SPEED SIGNAL
PWM
+12v UNREG
GND REF.
ELEV. DOWN
E–STOP
CIRCUIT GND
REF. GND
ELEV. UP
+9v REG
+5V
Zero Switch
1234567
A/V
CHR SYSTEM
SIG
+5V
GND
J2
AD–18199 PCA, 530T DISPLAY AV
AD–17105 PCA, 520–530T DISPLAY
LEFT
RIGHT
LEFT FRONT SIGNAL
LEFT REAR SIGNAL
RIGHT FRONT SIGNAL
RIGHT REAR SIGNAL
SHIELD
AW–17706 CABLE,CHR GRIP
REF. L
REF. R
GND
+5V
SIG
PCA, SALUTRON SERIAL OUTPUT EC–17763
GND (BLACK)
+5V (RED)
SIG (GREEN)
AW–17707 CABLE, CHR TO DISPLAY
AD–16559 DISPLAY, HANDSET W/WHR
WIRELESS
E–STOP
E–STOP KEY
N
S
E–STOP MAGNET
FLEXTAIL 'C'
SHIELD (NOT USED) 1
ROW 1 SWITCH 2
ROW 2 SWITCH 3
ROW 3 SWITCH 4
COL 1 SWITCH 5
COL 2 SWITCH 6
STOP
ELEV. UP
ELEV. DN
SPEED UP
SPEED DN
START
BOTTOM SWITCH MEMBRANE SW–18305